

digital film technology

Scanity HDR

high dynamic range film scanner

User Manual

Software Version 3.2.2 / 3.5.2



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WEEE Disposal Directive for B2B Products

The customer assumes the duty to correctly dispose of the delivered product at the end of its usage period at his own expense in fulfillment of the statutory provisions. The customer indemnifies the supplier from the take-back obligation specified in §10 of the Directive 2002/96/E and from any third-party claims related to this obligation. The customer shall contractually bind third parties, to whom he commits the product, to correctly dispose of the product at the end of its usage period at their own expense in fulfillment of the statutory provisions and to impose a corresponding duty if the product is recommitted to other parties.



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Revision History

Date	Version	Remark	Responsible
10.10.2014	2.0	Document created based on old Manual	B. Kratz
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25.09.2018	2.2	Software Version 3.0.4	B. Kratz
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29.05.2020	2.5	Software Version 3.2.0	B. Kratz
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Declaration of Conformity

we Digital Film Technology GmbH
Borsigstrasse 13
64291 Darmstadt Arheilgen
Germany

declare under our sole responsibility that the products

SCANITY Film Scanner and
SCANITY HDR Film Scanner

Type	Name	Part Number
FS 2306 - 2315, 4306 - 4312, FS4315	Scanity	000 129 561 x10
	Scanity HDR	000 129 562 x10

to which this declaration relates are in conformity with the following standards:

EMC Directive 89/336/EEC

Standard	Type		
EN 55103-2	Immunity, enclosure	Radiated RF	EN 61000-4-3
		Electrostatic discharge	EN 61000-4-2
	Immunity signal and control lines	Fast transients	EN 61000-4-4
		Conducted RF	EN 61000-4-6
	Immunity AC Power Lines in/ out	Fast transients	EN 61000-4-4
		Power variation/dropouts	EN 61000-4-11
	Immunity AC Power Lines inputs	High energy impulses	EN 61000-4-5
		Conducted RF	EN 61000-4-6
EN 55103-1	Enclosure, lines	Radiated emissions	
	AC power line	Harmonic current	
		Conducted emission	
EN 12000-1	Safety of machinery	Principles for design	

following the provisions of 2004/108/EC, 2006/95/EC and 2006/42/EC directives

Darmstadt Arheilgen, 09. Oct 2014


Aaron Taylor, Managing Director

1. Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual. Please observe the safety instructions published in the Installation Manual also.

WARNING: Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1.1 Safety Terms and Symbols

1.1.1 Terms in this Manual

Safety-related statements may appear in this manual in the following form:

WARNING: Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION: Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

1.1.2 Terms on the Product

The following terms may appear on the product:

WARNING: A personal injury hazard is immediately accessible as you read the marking.

WARNING: A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION: A hazard to property, product, and other equipment is present.

1.1.3 Symbols on the Product

The following symbols may appear on the product:



Indicates that dangerous high voltage is present within the equipment enclosure that may be of enough magnitude to constitute a risk of electric shock.



Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.



Safety instruction concerning laser transceiver, used in this unit.



Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.



Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

1.2 Warnings



The SCANITY is designed in conformity with the safety regulations ANSI / EN 60950 and is in a faultless condition when leaving the factory. In order to maintain this condition and to ensure safe operation, the instructions in the manual have to be observed.

The following warning statements identify conditions or practices that can result in personal injury or loss of life.

- Mount the film scanner on concrete or another non-combustible surface only!
- **Use proper lift points** - Do not use door latches to lift or move equipment.
- **Use only in dry environment** - Do not operate in wet or damp conditions.
- **Use only in non-explosive environment** - Do not operate this product in an explosive atmosphere.
- **Secure the film scanner against sliding** - Loosen off the 4 screwed stand feet of the film scanner using a 17-mm wrench, until the transport wheels are released.
- **Protect eyes and skin** - High-intensive energy exits within the illumination path, generated by the LED light.
- **Dangerous voltage or current may be present** - Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.
- **Do not service alone** - Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.
- **Remove jewelry** - Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- **Avoid exposed circuitry** - Do not touch exposed connections, components or circuitry when power is present.
- **Use proper power cord** - Use only the power cord supplied or specified for this product.
- **Ground product** - Connect the grounding conductor of the power cord to earth ground. When setting up and connecting the film scanner, connect the earth line always before connecting the power line. Thus is ensured that in case of a short-circuit between mains and case, the current is led to earth. For this reason, never disconnect the earth line from the device while it is operated.
- **Operate only with covers and enclosure panels in place** - Do not operate this product when covers or enclosure panels are removed.
- **Use correct fuse** - To reduce the risk of fire replace only with the same type and rating of fuse. Never use a mended fuse! Do not short-circuit the fuse holder!
- **Double pole neutral fusing** - Disconnect mains power prior to servicing.

CAUTION: The rear service AC Out socket is a double-pole neutral fusing. After operation (breaking) of the protective device, one line can remain under voltage!

- **High leakage current may be present** - Earth connection of product is essential before connecting power.
- **Danger of injury!** - To prevent injuries please use only the door handles to open and close the doors.
- **Close filmdeck front door** - When the film scanner is running, always keep the front doors closed, do not touch the rotating filmdeck parts. The closed front doors protect against fluttering film ends in the event of a film break. During operation, the filmdeck front doors are secured with an automatic locking mechanism:
 - **Front doors open:** Film operation up to a fixed speed of maximally 50 frames per second is possible
 - **Front doors closed:** All operation modes are possible
 - **Front doors locked:** At more than 2x the standard speed, closed front doors are locked additionally. The front doors are unlocked as soon as lower shuttle speed is reached again.
- **Danger of injury!** - Do not touch moving mechanism.
- **Keep rear doors always closed** - To avoid EMC (electromagnetic compatibility) problems keep the rear doors always closed during operation. Opening the covers or removing parts with tools may give access to live parts. In such cases, the machine must be disconnected from the mains. If, for example due to a failure, safe operation of the film scanner is no longer ensured, take the machine out of operation and secure it against further use. Do not insert or remove plug-in cards during operation.
- **Avoid mechanical hazards** - Allow all rotating devices to come to a stop before servicing.
- **Laser Radiation** - Do not stare into the beam or view with mirror or other optical instruments!
- **Servicing** - All servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any installations other than that contained in the manual unless you are qualified to do so. Refer all servicing to qualified service personnel. Access to the inside of the film scanner is restricted by locked front and rear doors. The closed doors protect the operator against electrical and mechanical hazards. Before working on the power supply circuit (power clips, wires, filters, switches, fuses etc.) do disconnect the film scanner from mains. Even if the mains switch is "OFF", the parts in the device are still live!

CAUTION: Capacitors may still carry a residual charge for approx. 4 minutes after having switched off the device! If, however, working on the opened machine is inevitable, this has only to be done by an expert who is familiar with the dangers involved.

- **Water Cooling System** - Do not open the water-cooling system! Irritant! The contact with skin is to be avoided. If, however skin contact did occur rinse with lots of water. Do not drink. When handling the coolant, the necessary measures of safety and sanitary procedures for handling of chemicals as well as all common regulations and notices from the Safety Data Sheet are to be followed. See Appendix of the Installation Manual.

1.3 Cautions



The following cautionary statements identify conditions or practices that can result in damage to equipment or other property:

- **Use correct power source** - Do not operate this product from a power source that applies more than the voltage specified for the product.
- **Use correct voltage setting** - If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- **Provide proper ventilation** - To prevent product overheating, provide equipment ventilation in accordance with installation instructions.
- **Use anti-static procedures** - Static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.
- **Do not operate with suspected equipment failure** - If you suspect product damage or equipment failure; have the equipment inspected by qualified service personnel.
- **Ensure mains disconnect** - If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.
- **Use shielded cables** - The EMV regulations are only applicable when correctly shielded cables are used for installation of the equipment. This applies to video cables as well as control cables. Corresponding cables can be obtained from Digital Film Technology GmbH.
- **Route cable properly** - Route power cords and other cables so that they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage. All external connection cables must be fed through the "Cable feed-through panel", located at the rear of the film scanner, and their cable shields must be connected to the ground by means of the grounding clamps or the sealing tape.
- **Use correct power supply cords** - Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.
- **Troubleshoot only to board level** - Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (FPGAs). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

- **Batteries** - The workstation contains lithium batteries, which must be exchanged every five years. Caution! Danger of explosion if battery is incorrectly replaced (interchanged poles). Replace only with the same or equivalent type recommended by the manufacturer. Dispose used batteries according to the manufacturer's instructions.
- **Sensitive touch screen!** Do not use pointed, sharp edged or metallic implements as a stylus, they may damage the sensitive touch screen! Use touch screen only with your fingertips!

2. About the Manual

This manual was designed for technical personnel working with the SCANITY Film Scanner system.

2.1 Trademarks

All product names mentioned in this manual are the trademarks of their respective owners.

2.2 Copyrights

Information in this document is subject to change without notice. This document and any updates and/or supplemental information, including any copies thereof, cannot be reproduced, neither communicated to a third party, without written authorization from Digital Film Technology GmbH.

Please notify Digital Film Technology GmbH of, if any, errors in this document. We would also appreciate any comments you may have to improve this manual.

Note: The features and functions described in this manual are not necessarily all components of the basic version of the SCANITY Film Scanner and some will need to be ordered as additional options.

2.3 Standard Documentation Set

The standard SCANITY Film Scanner documentation set consists of:

- Installation Manual
- User Manual
- Release Notes

The Installation Manual contains information about installing, configuring and maintaining the SCANITY Film Scanner system.

The User Manual contains background information about the SCANITY Film Scanner and describes operating procedures. This manual can be used while learning more about the system and for enhancing the user's basic knowledge.

The Release Notes contain information about new features and system enhancements for a specific software version and include software installation procedures.

Note: Always check the release notes for your current system software before you begin operating your system.

3. Operating Basics

3.1 General Notes

3.1.1 Intended Use

The SCANITY Film Scanner is designed and constructed to be used for scanning 35mm, 16mm and 8mm positive and negative Safety Film.

Nitrate-based film scanning is dangerous and requires trained staff for proper handling. Please observe strictly your national law and regulations for use and handling. If you are unsure how to handle and scan nitrate-based film, please contact the manufacturer of the film scanner. Scanning of nitrate-based film shall be made under the full responsibility of the user and with the knowledge that Digital Film Technology GmbH declines any liability for scanning nitrate-based film including but not limited to possible damage to the film scanner, the film material and injuries to people involved. Please refer to the Digital Film Technology GmbH General Terms of Conditions.

3.1.2 Operator Requirements

The DFT initial operator training is insufficient for operators without previous experience and qualifications. The SCANITY operator must be instructed and should be trained and qualified by DFT Operator Training or should have excellent working knowledge with high end, high speed film scanning. In addition, the operator should be familiar with electrical equipment, machines with rotating components and related technical standards and regulations.

3.2 Introduction

SCANITY is a film scanner that offers unprecedented speed, versatility, stability and safe film handling. It serves a variety of scanning applications including; dailies, feature film scanning, EDL-conform scanning, low-resolution browsing, archive and restoration scanning, short-form commercials, and digital intermediate scanning applications.

SCANITY provides also Audio Scanning, an option that allows facilities to scan analog optical mono or stereo audio tracks on 16 and 35mm film and magnetic tracks on 16mm film. This feature eliminates extra and separate image and audio scanning passes.



Figure 1

Scanity Machine #101 - #150



Figure 2

Scanity HDR Machine #201 >

A multitude of unique and first-to-market features provide users with cutting edge technology that addresses the challenges that many facilities are facing today.

SCANITY enables facilities to improve their ROI, enhance productivity, work effectively in data-centric workflows, and service their markets with a solution that reproduces the pristine quality of film and image quality they require.

SCANITY uses efficient LED light sources, dedicated hardware processors, as well as fewer and less expensive third-party components. This lowers initial costs as well as operational expenses.

SCANITY is an unparalleled piece of technology that combines skilled engineering and precision manufacturing to deliver a high-speed, flexible, and versatile film scanner.

3.2.1 High Speed Imaging

On 35mm 4 perf film, SCANITY scans film material in 4K resolution up to 15 fps, 2K up to 25 fps, 1K up to 44 fps, 0.5K up to 66 fps, and 0.25K up to 96 fps - depending on SCANITY type, interfaces and receiving devices.

SCANITY uses unique Time Delay Integration (TDI) line sensor technology, and dedicated FPGA image processing to deliver record-setting high-speed film scanning - all while handling film gently and safely.

3.2.2 Versatile and Flexible Scanner

SCANITY is an incredibly versatile and flexible scanner that serves a multitude of scanning applications. Its speed makes it ideal for EDL conform scanning of feature films, short-form commercial scanning, dailies scanning, low-resolution browsing, and applications that require the immediacy of live moving images. SCANITY is an excellent fit for applications where film is scanned only once. The roller gate makes it perfect for sensitive and fragile film in restoration and archiving applications.

3.2.3 Gentle and Safe Film Handling

SCANITY uses a completely new and uniquely designed film gate mechanism instead of skid plates. Film travels on the Roller for approximately 170 mm (7") during which the image and optical perforation scanning takes place. The film lies stable on the roller, and the high resolution tachometer wheel (which is attached to the roller) provides control pulses to precisely manage the movement of the film supported by the optical perforation detection. This method is the gentlest way to transport and scan the film, and besides the rollers, there are no mechanical parts. The rubber-coated and newly designed continuous capstan drives the film smoothly and securely and is a well proven concept that is used in the Spirit family of scanners.

3.2.4 Stability and Steadiness

SCANITY provides touch-free pin registration rather than mechanical pins to ensure excellent image steadiness. Several newly designed modules meet this goal and include: An optical perforation detection device with dedicated camera. A precision roller gate for mechanically stabilizing the film, which is controlled by a high resolution tachometer and servo system. A continuous motion capstan film transport. And dedicated hardware for 4K image stabilization processing without delay. With these key elements, SCANITY combines steadiness with high speed and gentle film handling.

3.2.5 Workflow Efficiencies

SCANITY includes two control interfaces; a local touch-screen display, and a workstation with dual displays. Through these two interfaces, users can control the scanner, perform image quality checks, and adjust a variety of technical settings. The workstation includes software tools for monitoring, calibration, image ingest, and executes scheduled batch processing during scanner idle times.

3.2.6 WetGate Option

The Scanity HDR WetGate system consists of two major components:

- Lens Gate Assembly (LGA; available for 16mm or 35mm films)
- Supply Unit

The WetGate can be mounted like a standard “dry” Lens Gate Assembly (LGA) and is connected to a supply unit, which includes a tank, filters and pumps to supply the fluid together with electronics to control the LGA and the fluid stream. All components mentioned above fit in two 19” enclosures and are installed in a standard 19” electronic rack.

In contrast to most concepts in the market, Scanity’s WetGate ensures that the film gently passes through a large fluid tank (aquarium), submerging the film in a liquid with the same refractive index of the film. As the film is submerged, the fluid fills in surface imperfections, such as scratches and surface damage, so that when it is scanned these surface imperfections have been minimized.

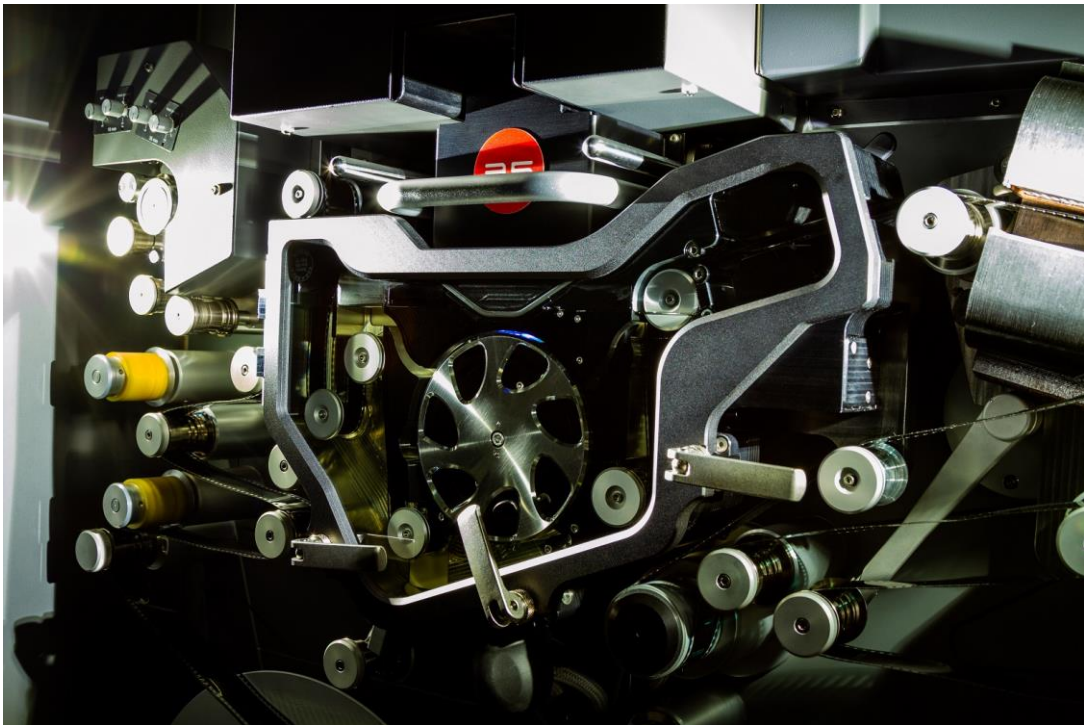


Figure 3: 35mm WetGate

Note: For detailed information of WetGate operation, please consult the separate WetGate User Manual.

3.2.7 8mm Option

The 8mm option is an add-on for the 16plus LGA.

The Scanity roller gates for 16mm and 35mm offers an incredible steadiness performance which is usually not required for material like 8mm. This allows to combine the roller gate with a skid plate for non 16mm formats as a cost-efficient solution for such material.

Currently the 8mm option is supporting S8, R8 and Max8 (with modified skid plate) material but the 16plus concept allows to support additional formats in the future if this is requested.

8mm will be scanned with the 16mm lens which results in a 3-micron pitch if a 4k resolution is selected.

3.2.8 HDR Mode Option

In HDR mode the three scan channels will be used to measure different density ranges instead measuring different color patches. To get the different density ranges the illumination for the three channels will be set differently.

One channel will be exposed as usual, but the other channels will be overexposed. A firmware HDR merger in the processing will merge the three images into a monochrome HDR signal.

HDR method improves the SNR for very dense areas a lot which increases the usable density range of the system drastically. As implemented even for non HDR monochrome modes the green channel will be used as the monochrome output channel.

Note: This feature is only working for B&W material

Note: A valid “HDR Grayscale” license must be installed

Note: Performance of HDR is only visible in areas with a very high density.

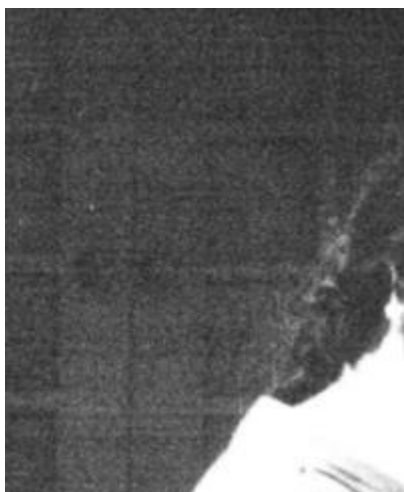


Figure 4: Non-HDR Image



Figure 5: HDR Image

3.2.9 Audio Option

The optional audio scanner is mounted into SCANITY before the Lens Gate Assembly. The capstan-driven continuous film transport offers real-time audio scanning in conjunction with real-time 2K film scanning. The sound track is picked up by audio heads, converted into .wav files on the SCANITY workstation and stored with the images. At this stage both the audio and image files are available for further processing.

Audio tracks on legacy film may not be fully standard compliant. User adjustable optical audio heads allow correcting for this deficiency. They allow compensating for azimuth or lateral positioning errors of the optical audio tracks.

Internal processing within the audio scanner compensates for any audio delays that are introduced, as well as any pitch changes due to film shrinkage or other factors.

Many archive films contain optical or magnetic sound tracks. With combined features such as extremely gentle film handling and optical or magnetic audio scanning, SCANITY is an ideal scanning solution for the film archive market.

The optical audio scanner can be ordered as an option with a new SCANITY or added to existing SCANITY film scanners in the field. SCANITY must be configured for scanning 35mm, 4-perf, 2K with 25 fps (Speed A).

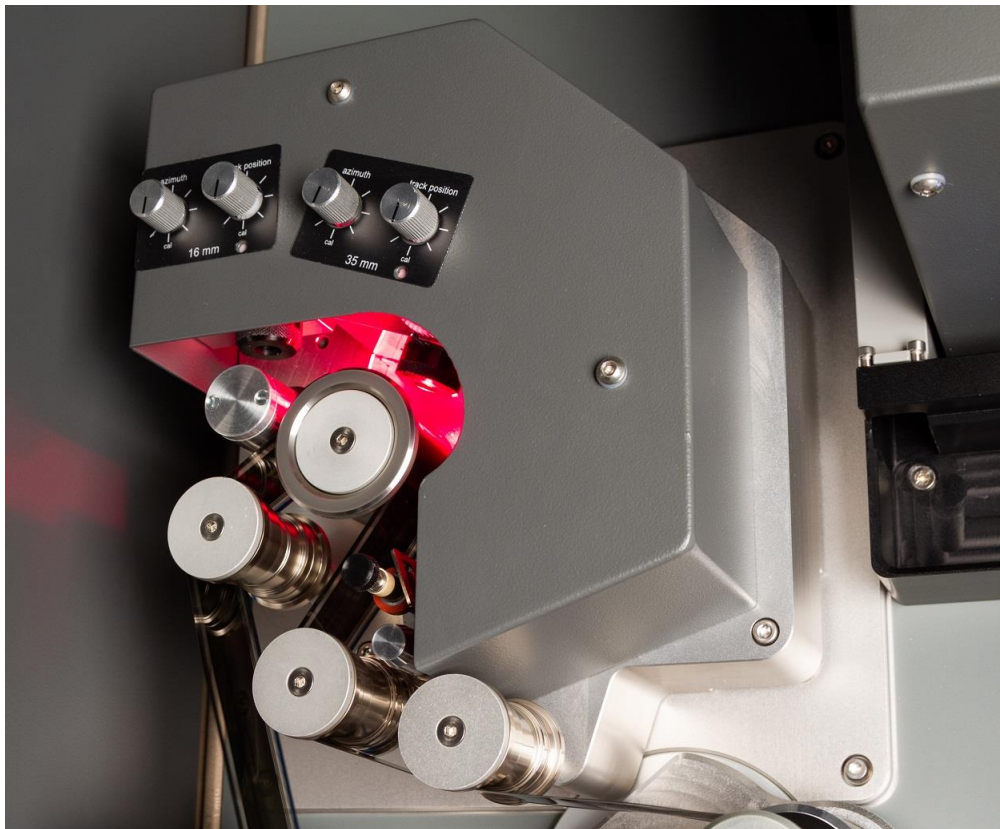


Figure 6: Audio Base Unit

3.2.10 Key Features

- High quality multi-format film scanner that offers unprecedented speed, versatility, stability, and safe film handling
- High speed scanning - 4K scanning up to 15 fps, 2K up to 25 fps, 1K up to 44 fps, 0.5K up to 66 fps, 0.25K up to 96 fps (depending on SAN performance and SCANITY type)
- Versatile multi-application scanner-EDL/conform scanning, dailies, low resolution browsing, and highly suited for restoration and archiving, commercials and “video-like” applications
- Customized high-resolution optics - capable of resolving 8K equivalent image details
- Time Delay Integration (TDI) sensor technology for extremely fast and sensitive film scans - over 4300 horizontal active pixels, 96 TDI lines, 6 μ pixel size
- Independent from frame height - film frame aspect ratio is matched by the numbers of lines
- LED light sources with optimized spectral wavelengths, specifically designed for a variety of film stocks
- Precision roller gate avoids mechanical stress and risk and provides unparalleled smooth and safe film handling
- Continuous motion capstan film transport
- Touch-free Optical Pin Registration Perforation scanning without mechanical pins or sprocket wheels
- Highly integrated, dedicated, and fast spatial image processing manages content scaling and formatting
- Dirt and scratch handling capabilities with diffuse illumination and IR channel, capable of dirt map generation for internal / external processing
- Long LED life provides a stable and cost-effective illumination solution

3.2.11 Audio Key Features

- High performance audio scanner for mounting into the SCANITY film scanner
- Audio components from Sondor are seamlessly integrated and qualified
- Reads optical audio tracks on 16- and 35-mm positive film (print)
- Tracking and azimuth of optical sound heads can be mechanically adjusted
- Suitable for reading cyan-dye high magenta and silver optical tracks
- Variable area: Unilateral, bilateral, dual lateral
- Variable density
- Scans analog audio tracks and converts them into digital audio files
- Reads magnetic tracks on 16mm film
- Eliminates extra and separate image and audio scanning passes
- Real-time audio scanning in conjunction with 2K resolution (SCANITY version SPEED A required)
- Generates broadcast .wav files for automatic syncing of images and sound
- Audio Base Option includes a platform for audio heads, wire harness and 19" 3RU electronics unit
- Compensates Audio Delays
- Pre-wired aligned and system tested
- Upgrade SCANITY with audio scanner with adjustable heads in the field is possible

3.2.12 SCANITY Workstation

The tasks of the HP workstations are as follows:

- Provides the user authentication, administration and control interface on the external LCD monitors and the built-in touch panel display
- Hosts the machine control system for the scanning hardware module
- Receives the scanned images via a high-speed data interface from the scanning module
- Writes the received images to any type of high-speed disk storage
- Visualizes the received images on the external monitors and the touch panel display
- Has an interface to a database that keeps track of all scanned images
- Provides a short-term storage for Low-res proxy images of all images on the current film reel
- Depending on manufacturing date, Scanity is equipped with one of the below models: HP xw8600, HP z800, HP z820, HP z840 or HP z6 G4



Figure 7: Example z840 Workstation

3.2.13 Front View

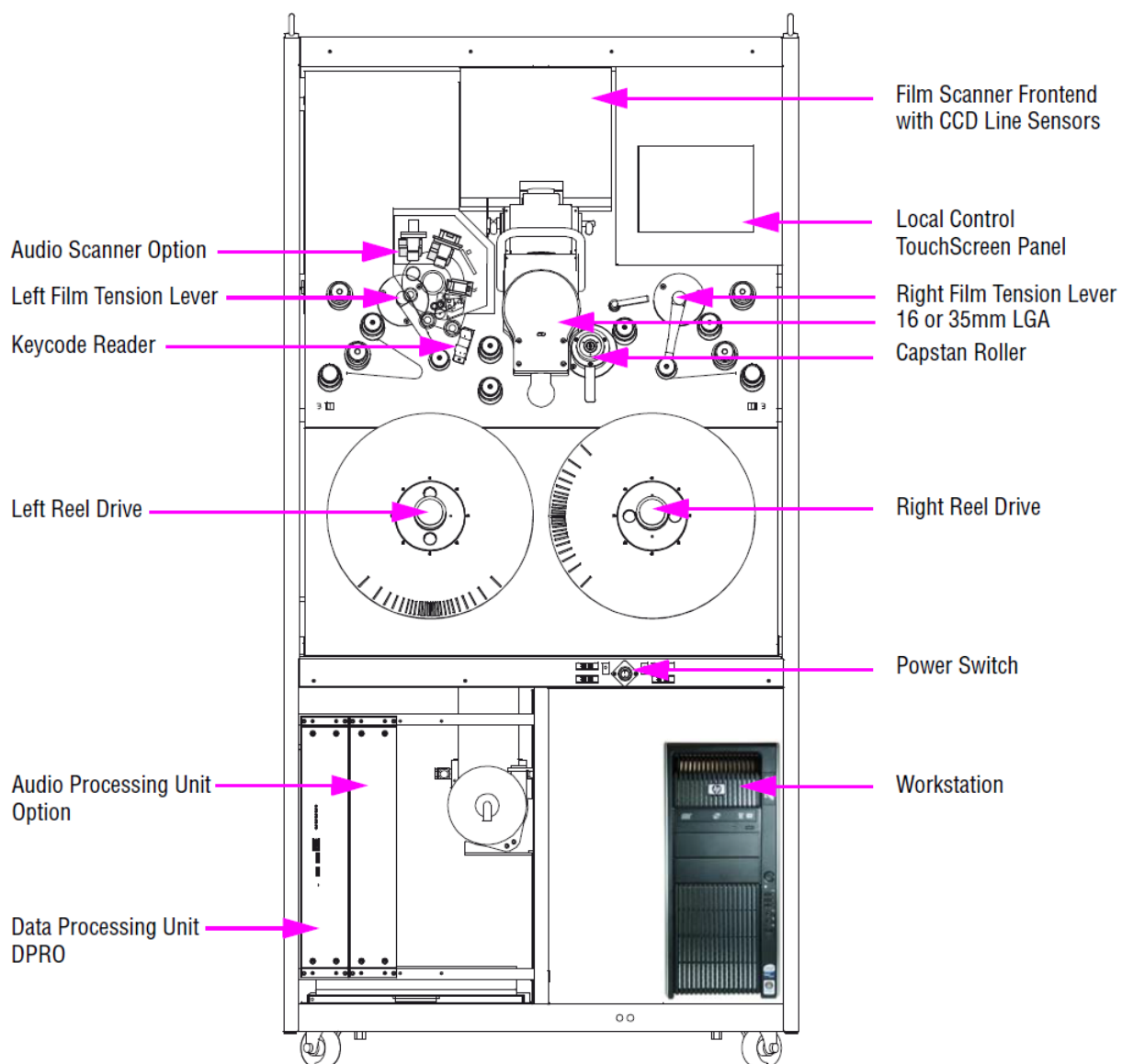


Figure 8: Front View

3.2.14 Rear View

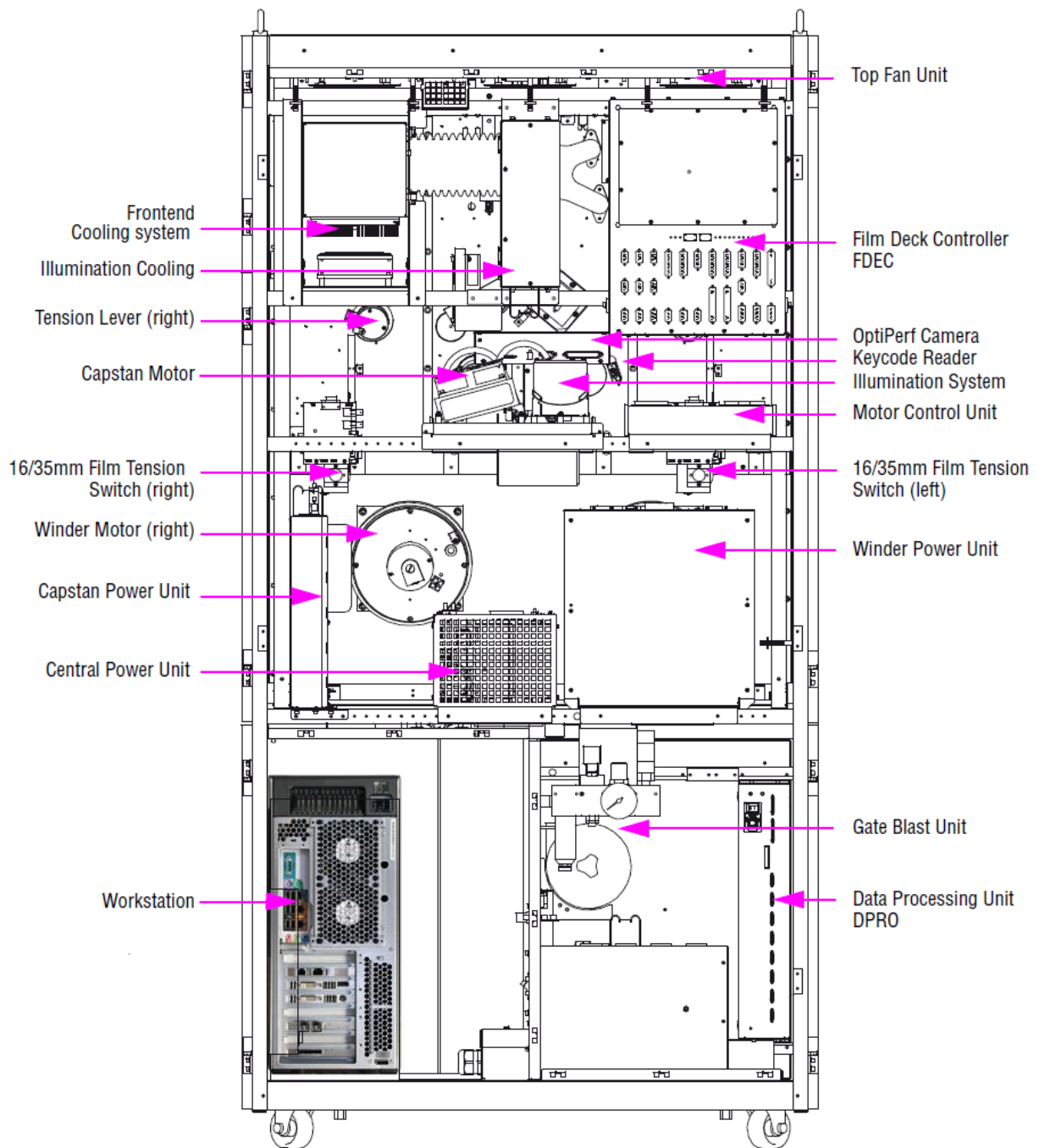


Figure 9: Rear View

3.3 Filmdeck

CAUTION: Danger of injury! - Do not touch moving mechanism.

3.3.1 Open Front Doors

WARNING: When the film scanner is running, always keep the front doors closed! Do not touch the rotating filmdeck parts. The closed front doors protect against fluttering film ends in the event of a film break.

Please note the following instructions:

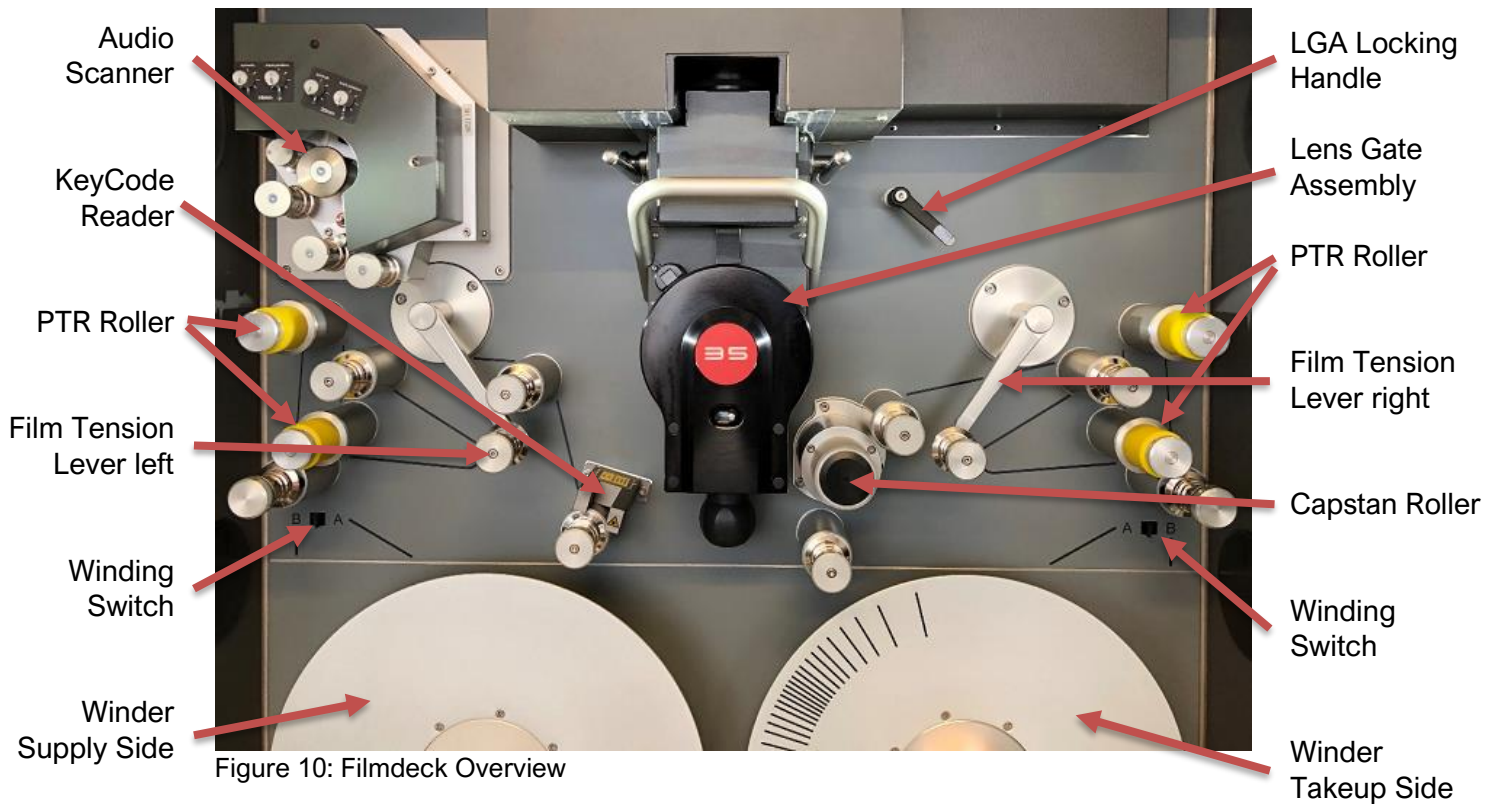
Front doors open:

Film operation with limited speed.

Front doors closed:

All operation modes are possible.

3.3.2 Filmdeck Overview



The SCANITY is equipped with winding plates with spindles of 8 mm diameter, bobbin carriers and locking knobs. The plates can be used to operate with 16mm or 35mm film rolls wound to bobbins.

3.4 Lens Gate Assemblies

The 16 mm and 35 mm Lens Gate Assemblies (LGA) come with precision roller gates. This avoids mechanical stress and provides unparalleled smooth and safe film handling.



Figure 11: 35mm, 16mm and 16Plus LGA

The 16mm and 35 mm LGA will be delivered each in a separate Peli-Case to protect these very sensitive parts against damages. Handle with care! Put an unused LGA back in its Peli-Case!

3.4.1 Insert / Change the LGA

Installing the appropriate LGA (Super 16mm, FA 35mm) optically matches the film scanner to the respective film format.

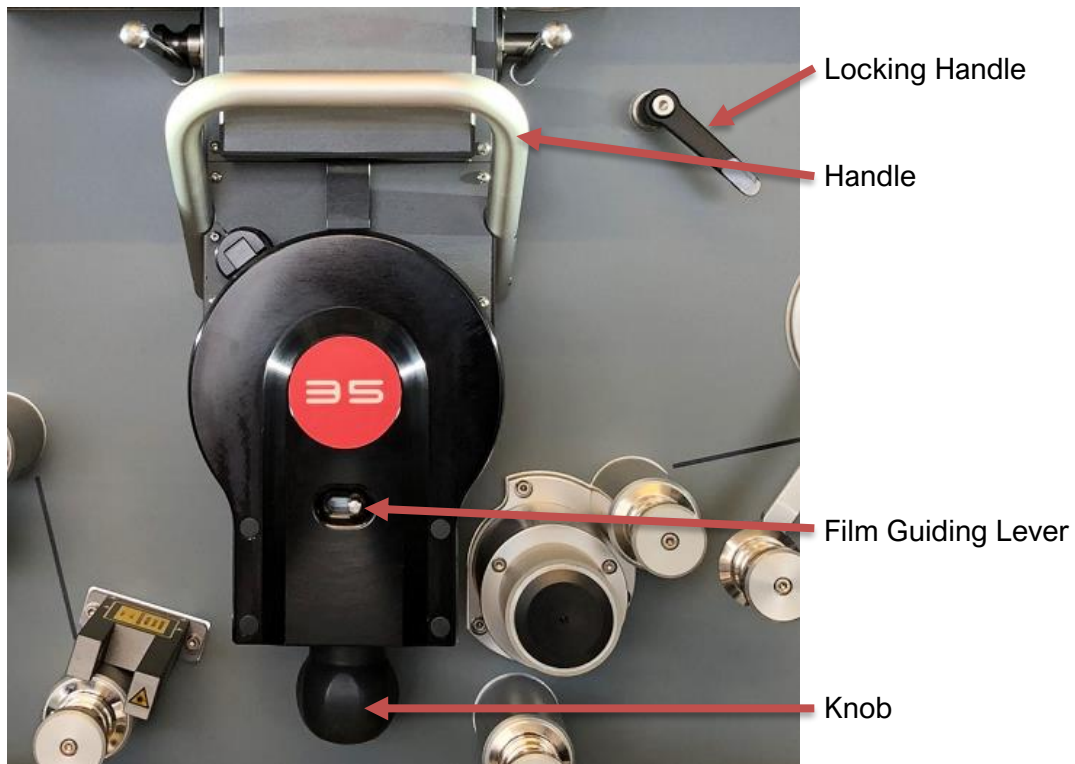


Figure 12: LGA Overview

CAUTION: When pulling out the optical block, keep a firm hold on it (approx. 8 kg)! As soon as the optical block leaves the guide rails, it might be possible that it slides downwards:

1. Remove the threaded film from the LGA, if necessary
2. Unlock the no longer required LGA. For this purpose, move the locking lever on the right of the optical block in upwards CCW direction
3. Please grasp the LGA at the upper handle lever and at the lower knob only, see Figure 9
4. Put the no longer required LGA into the transport case
5. Take the required LGA, set it on the guide rails and slide it slowly towards the filmdeck plate until it fits
6. Hold the LGA in this position and lock the unit using the locking lever beside (position LOCK)
7. Open the film gate locking lever and close it again, to ensure, that the LGA is not tilted
8. Perform a Calibration process

3.4.2 8mm Option for 16Plus LGAs

The 16Plus lens gate assembly includes an exchangeable adapter plate. The 16mm adapter will come with the LGA, the accessories kit for 8mm must be purchased separately.

The 8mm option includes:

- One 8mm gate adapter supporting S8 and R8 (1)
- One 8mm skid plate supporting S8 and R8 (2)
- Two S8 spool adapter plates (3)
- Two S8 to R8 Spool adapters



Figure 13: 16Plus LGA and Accessories

In 16mm operation the LGA operates without the skid plate and is used like a regular 16mm LGA.

To enable 8mm Operation the adapter plate and skid plate need to be installed. See Section

3.4.3 Exchanging 16Plus Adapter plate for details.

Additionally, during operation the 8mm Stabilization option needs to be enabled, see chapter

6.5.5.1 Pin Registration Modes for Details.

3.4.3 Exchanging 16Plus Adapter plate

The gate adapter plate is locked with two knurled head screws (1)



Figure 14: Installed 8mm Adapter

3.4.3.1 Removing

- Loosen the screws (1)
- In case of the 8mm plate make sure to lift the roller arm (2) a little with the right hand
- Tilt the top of the plate (3) slightly to the front
- Move the plate (3) it a little upwards.
- Pull the plate (3) to the front.

3.4.3.2 Installing

Caution: Make sure that the skid plate is installed in case of 8mm and removed for 16mm operation!

- Push the plate (3) to the back so that it fits.
- Lock the screws (1).

3.4.4 Handling of 8mm skid plate on 16Plus LGA

The skid plate must be installed for 8mm and removed for 16mm operation. Installing and removing should be done with removed adapter plate.



Figure 15: Installing a skid plate

3.4.4.1 Installing

- Switch the release knob (5) to the release position. This will lift the pressure rollers
- To install the skid plate (4) insert it with the longer side to the left
- Push the plate down carefully

3.4.4.2 Removing

- Use your fingers on both sides to lift the skid plate
- Switch the release knob to unreleased position for 16mm operation

3.4.5 Spool Adapters

Exchange the Bobbin adapters with the S8 Spool adapters.



Figure 16: S8 Spool Adapter

Note: Make sure that the film is running free and will not touch the reel.

3.4.6 Reel Locking Knobs

For 8mm operation, the reel locking knobs need to be adjusted. You can slide the below shown part in and out by pushing this button:



Figure 17: Reel Locking Knob Adjuster

You can either push it in (for 8mm use) or have it outside (for 16mm & 35mm use)

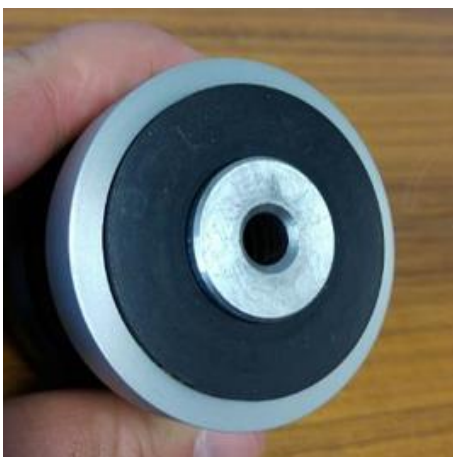


Figure 18: 16mm & 35mm Operation



Figure 19: 8mm Operation

3.5 Threading the Film

CAUTION: Film should always be held by its edges to avoid leaving finger prints on picture and sound areas.

Thread the film according to the film threading path printed on the filmdeck. Before the film can be threaded, observe the winding direction and the position of the A/B switch.

3.5.1 Observe the Film Thread Direction

- 8mm:** Put perforation towards the filmdeck plate.
- 16 mm:** Put perforation towards the filmdeck plate.
- 35 mm:** Put keycode/audio track towards the filmdeck plate.

3.5.2 Thread the Film Correctly

1. Slide the full film roll, as shown in Figure 5 on page 38, onto the left winding plate and lead the film on the correct film path ("A" or "B" printed on the filmdeck plate) to the right winding plate.
2. Slide the locking knob on the left reel spindle until it locks in with an audible click.
3. Put a bobbin onto the right winding plate. Insert the film leader into the slot of the bobbin and give the winding plate a few turns counter-clockwise.
4. Plug in the film reel onto the carrier of the reel spindle.
5. Slide the locking device on the right reel spindle until it locks in with an audible click.
6. Switch the Film Guiding Lever located on the front of the LGA shortly to the left, to reposition the film guiding rollers. This is required for proper film guidance.

CAUTION: Wrong A/B wind selection could cause film damaging. Do not initiate a filmdeck command if a film is threaded in and a A/B wind selection is wrong!

CAUTION: The AutoStop function is only working if the bobbin size is set correct.

3.5.3 Normal Film Thread

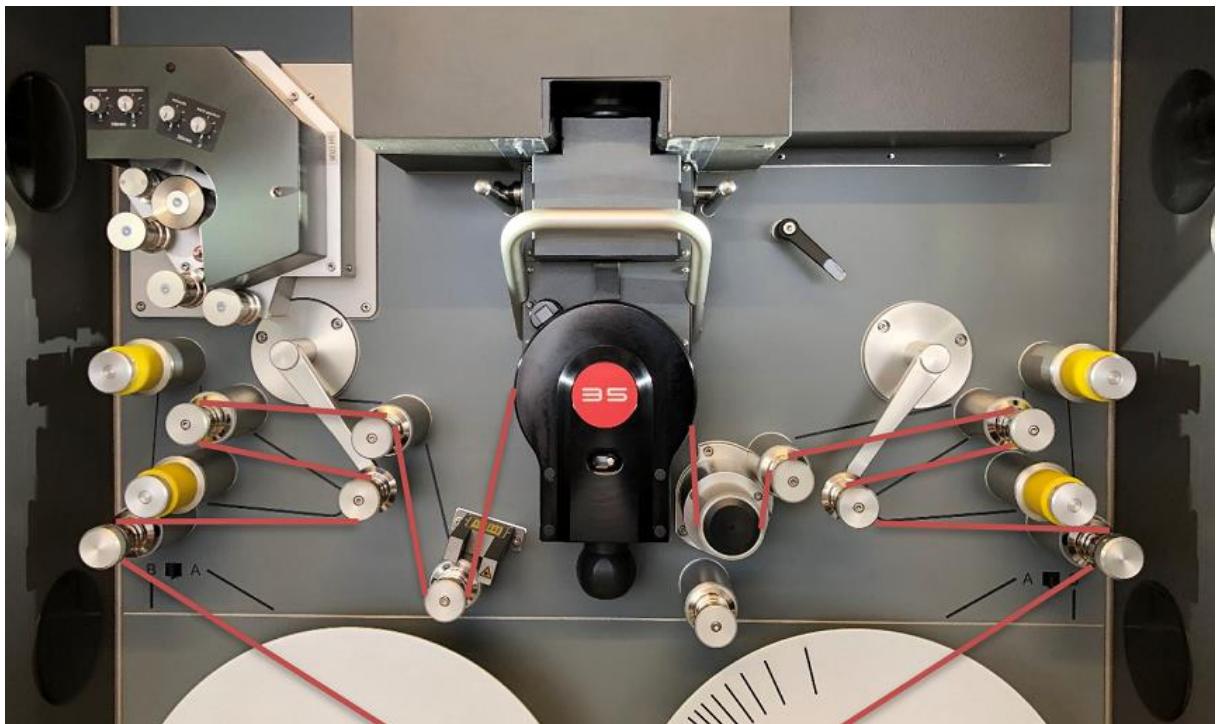


Figure 20: Normal Film Thread

3.5.4 Normal Film Thread Using PT Rollers

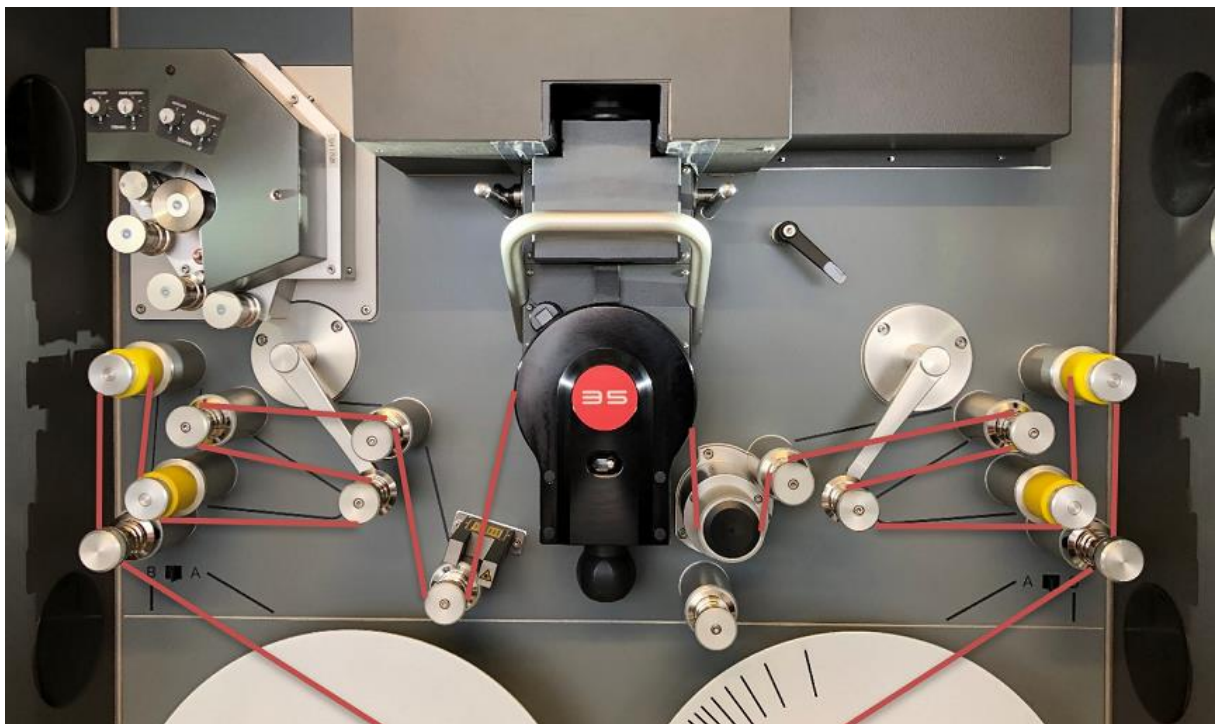


Figure 21: Film Thread Using PT Rollers

3.5.5 8mm Film Thread in 16Plus LGA

Thread the film like shown in the following picture (Scanity HDR system)
You will have to lift the lever on the right side of the LGA to thread the film easily.



Figure 22: Film Thread in 16Plus LGA with installed 8mm Adapter

3.5.7 Using PT Rollers

Particle transfer rollers (PT rollers) are used in the filmdeck to clean the film during play on both sides of dirt, dust and lint.

To use the PT rollers, thread the film according to the dotted film threading path printed on the film deck.

Note: The PT rollers must be cleaned regularly.
For details refer to section “Maintenance” in the Installation Manual.

3.6 Mains Switch

The mains switch is located on center of the four front doors.
The Workstation is not affected by this switch.

3.7 Filmdeck Illumination

The filmdeck is equipped with two LED lamps located at the right and left side panel section.

The Lamps can be controlled via the Setup Menu Page.
There are several options to switch it on.

WARNING: Very hot! Do not touch the lamps with your fingers!

3.8 Local Touchscreen Display

Touch the screen with a finger, gloved hand, fingernail, or object such as a credit card, and you will receive a fast, accurate response every time.
The touch screen is designed as a door and can be opened for service purposes.

WARNING: Do not bang your head when the touch screen door is opened!

3.8.1 Touchscreen Cleaning and Maintenance

Any standard glass cleaner can be used to clean the touchscreen, but avoid products containing ammonia. Always spray the glass cleaner on the cloth or towel and then clean the touchscreen. Glass cleaner sprayed directly on the monitor could possibly leak inside a non-sealed unit and cause damage. Dirt and fingerprints do not affect the operation of a touch display.

3.9 Keycode Reader

3.9.1 Overview

The SCANITY Film Scanner is equipped with a keycode reader for 35 mm and 16 mm film material according SMPTE standard 254-2002 for 35 mm film and SMPTE 271-2002 for 16 mm film.



WARNING: Class 2 invisible laser radiation!
DO NOT STARE INTO BEAM OR VIEW WITH MIRROR OR OTHER OPTICAL INSTRUMENTS!

Keycode is a Manufacturer-Printed Latent Image Identification Information printed on the edge of camera negative film. It consists of a two-letter film identification code, a six-digit prefix number, and a four-digit count. For 35 mm film the count is incremented every 64 perforations, which equals 16 4-perf frames or one foot. For 16 mm film the count is incremented every 20 perforations, which equals the same number of frames or six inches.

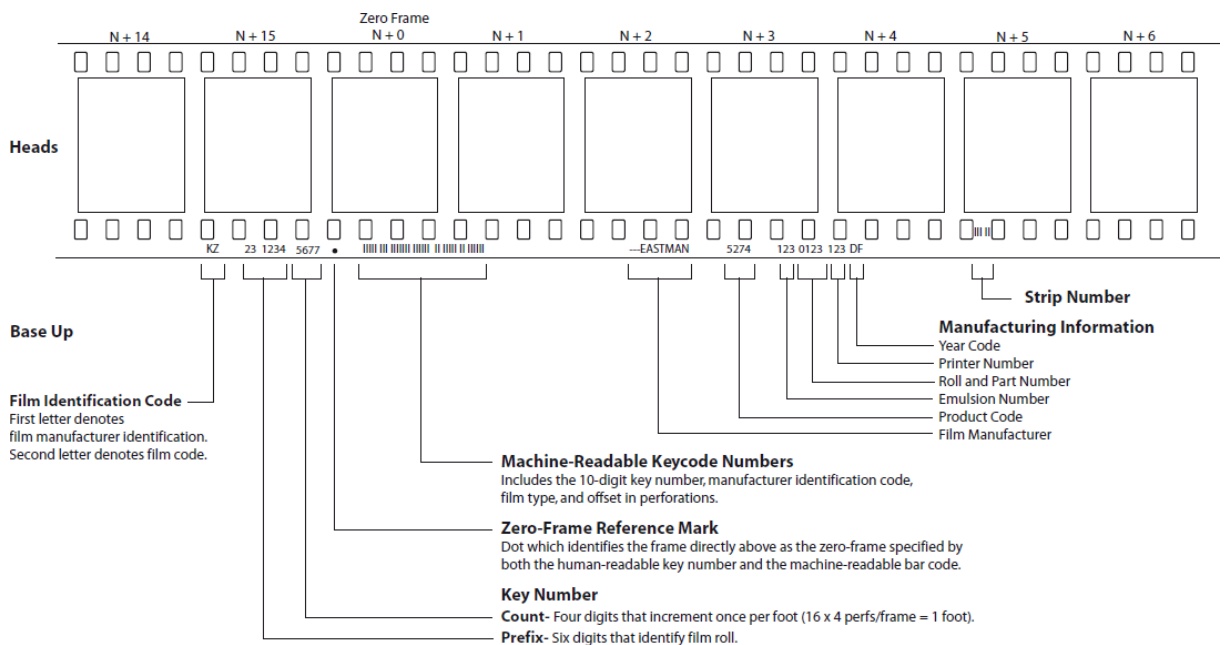


Figure 23: Keycode Example 35mm / 4 perf

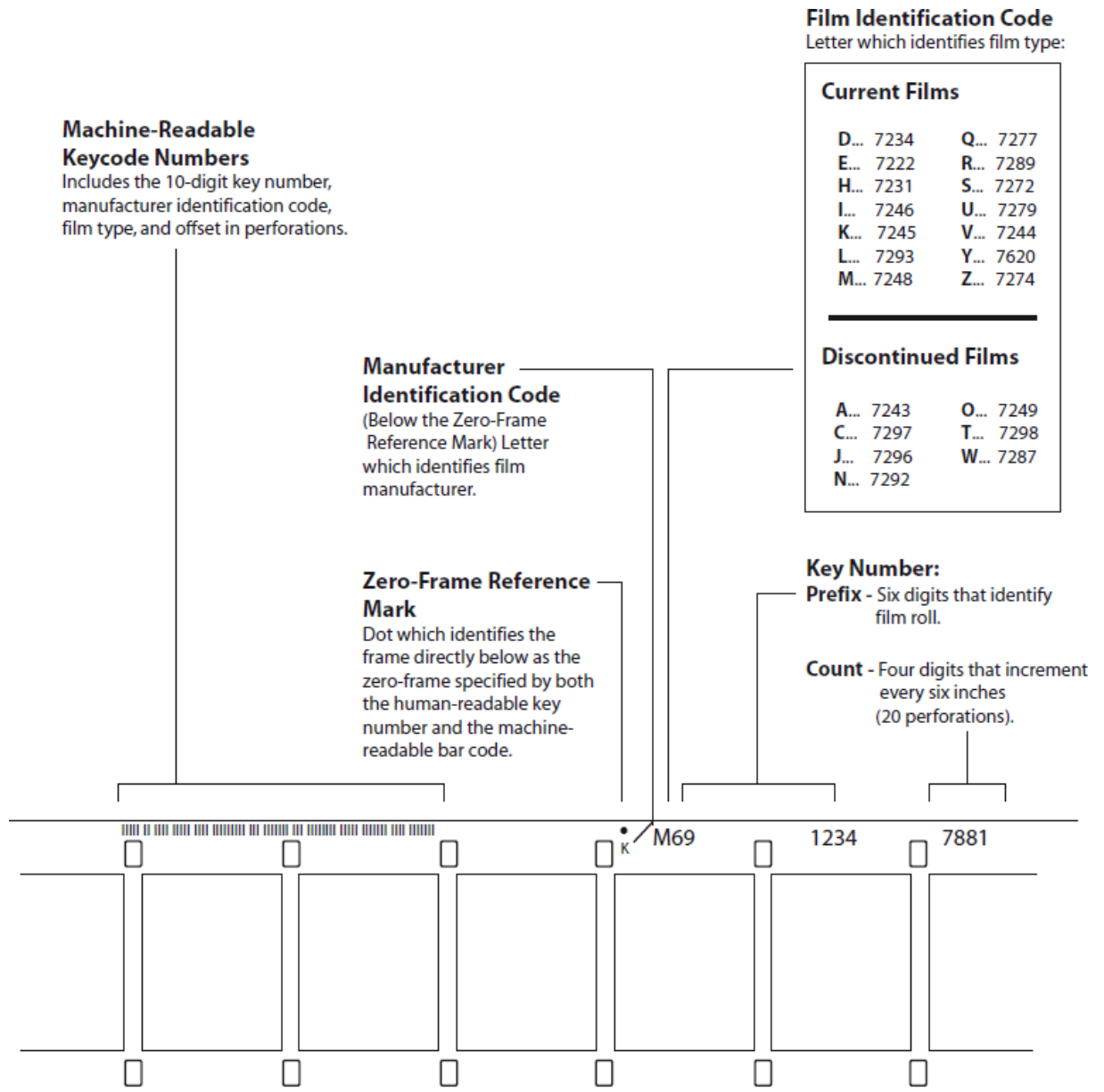


Figure 24: Keycode Example 16mm

The dot behind the human-readable keycode identifies the perforation hole to which the keycode belongs. Next to the human-readable keycode there is a bar code, which is read by the SCANITY's keycode reader. The bar code contains additional information for identifying the film stock details not available in the human-readable code.

3.9.2 Operation Hints

The keycode reading and processing will be performed automatically. There are no special user actions or adjustments necessary. Thread the film correctly. Keycode on the film must face the filmdeck plate.

Be sure that the film lies between laser transmitter and receiver.



Figure 25: Keycode Reader with Laser

During Play the keycode printed on the film will be scanned automatically. The 16- or 35mm laser transmitter switched on automatically, depending on the inserted Lens Gate Assembly. The scanner processing serves for:

- Film stock recognition and film stock memory recall
- Meta data generation
- Inserting keycode into the DPX header

CAUTION: Precondition for a proper keycode generation is an optimal framing adjustment!

3.9.3 Keycode Reading Quality

A light the Start menu shows the quality of the detected keycode:

- Green** Keycode read in good quality
- Orange** Keycode read in poor quality
- Red** No keycode detected



Figure 26: Start Menu - Keycode Quality

3.10 Audio Scanner Options

The optional audio scanner is mounted into SCANITY before the Lens Gate Assembly. The capstan-driven continuous film transport offers real-time audio scanning in conjunction with real-time 2K film scanning. The sound track is picked up by audio heads converted into .wav files on the SCANITY workstation and stored with the images.

Model	Description	Part Number
FS Audio Base	Audio Base Option	000 129 341 910
FS AUDIO-O35A-O	Audio Head, 35 mm optical, adjustable	000 129 342 810
FS AUDIO-O16A-O	Audio Head, 16 mm optical, adjustable	000 129 342 710
FS AUDIO-M16-O	Audio Head, 16 mm magnetic	000 129 342 510



Figure 27: Audio Scanner Option

Note: In case the film is threaded for 16 Commag scanning please do not wind the film with high speed.

3.10.1 Using Adjustable Audio Heads

Audio tracks on legacy film may not be fully standard compliant. User adjustable optical audio heads allow correcting for this deficiency. They allow compensating for azimuth or lateral positioning errors of the optical tracks.

The adjustment is done with knobs on the audio scanning unit.

3.10.1.1 Adjustment Range

35mm Comopt

Lateral Positioning Range

- Approximately 1 turn CCW (counterclockwise): 0,5mm towards the film edge
- Approximately 2 turns CW (clockwise): 1,0mm towards the image area

Azimuth Correction Range

- Approximately 1/2 turn CCW: $-0,7^{\circ}$
- Approximately 1/2 turn CW: $+0,7^{\circ}$

16mm Comopt

Lateral Positioning Range

- Approximately 2 turns CCW: 1,0mm towards the image area
- Approximately 1 turn CW: 0,5mm towards the film edge

Azimuth Correction Range

- Approximately 1/2 turn CCW: $-0,7^{\circ}$
- Approximately 1/2 turn CW: $+0,7^{\circ}$

The default position of the adjustment knobs are marked by a fat line on the scale. A colored indicator below the lateral positioning knobs additionally shows the shifting direction:

Grey	Default Positioning
Red	Knob turned ccw
Green	Knob turned cw

3.10.1.2 Adjustment Process

For adjustment purposes, a headset or audio measuring equipment can be connected to the speaker output on the workstation.

Press the Bypass audio delay for audio head adjustment button on the audio menu page during the adjustment procedure to bypass the internal processing delay and to make the adjustment easier.



Figure 28: Audio delay button

The levels of the output signals may be set by the monitoring level controls on the audio menu. Adjust the azimuth position of the audio heads to achieve optimum high frequency response. Adjust the lateral position of the audio heads to minimize harmonic distortions or crosstalk from perforation holes or image content on the audio signal.

The effect of azimuth or lateral adjustments will be less audible around the optimum head alignment point. Towards the left and right stops of the adjustment range effects, will become increasingly audible.

3.11 Hints for safe Film Handling

The Digital Film Technology systems are well known to handle the film material very gentle. Also, the systems are well liked because of their very dynamic film transport behavior. The film handling and servo system is optimized to allow the operator to work as efficient as possible by using the high speed and high dynamic of the film transport system. All data from that long history of film scanners shows the very good performance of this film transport system and only very little problems regarding gentle film handling.

This section explains critical cases for the film transport system and gives some hints how to avoid problems.

The film transport consists out of the following main components:

- Capstan actuation
- Winder actuation
- Tension arms
- Film deck controller

The film deck controller module is continuously supervising the different components of the film transport system during all modes of operation to detect critical cases.

For example, a film slippage in any area will be detected by the tension arms position. In this case the system will immediately go into an exception handling mode, which forces the system to stop the film movement and to release the tension to the film (Standby Off mode).

Nevertheless, because of the very high dynamics of the transport system, there are some critical areas the operator must take care to make sure that the system will not be overruled.

3.11.1 What are the Areas to Look for

- Avoid any clearance in the film transport system.
- Avoid contamination of any parts in the film transport path.

3.11.2 What to Check

3.11.2.1 Avoid Clearance

- **Check the bobbin status**

Older bobbins might have a bigger clearance. Any clearance might generate a slip during transport which might generate an exception handling. Please check the bobbin against any mechanical defects.

- **Film Package**

DFT Digital Film Technology GmbH recommends checking any new film roll before using the high dynamic of the film transport system by rewinding it during the normal scan process.

If a film roll is not packed well DFT highly recommends rewinding this roll one time with a slow speed on the system to avoid any big slippage during real operation. Otherwise the implemented exception handling might not totally cover all critical cases.

In case a package process is required, it needs to be done very carefully without stressing the film transport. So, please thread the film and shuttle it with limited speed in the same direction for the whole film roll.

- **Fix the film end**

Fixing the film ends by using the bobbin slit or by tape the film to the bobbin will avoid film slippage close to the end or begin of the film. If the film is not fixed it might slip during winder acceleration.

3.11.2.2 Avoid Contamination

- **Check cleanliness of capstan rubber surface**

Make sure that the surface is cleaned and looks OK. Otherwise the film might slip during capstan acceleration.

Note: Even if all things on the checklist are done and OK small residual mechanical tolerances might force the supervisor to go into an exception handling (unit will go to Stand by Off) if the system is stressed very hard. This is a normal behavior and no failure. In case the exception handling will be triggered often during operation with different film packages (unit will go to Stand by Off) please contact your local service representative to check the transport system.

3.12 Compressed Air Nozzle

CAUTION: The SCANITY film scanner must be operated with connected air compressor only! Check your compressor regularly! For details refer to your SCANITY Installation Manual.

An integrated gate blast unit, consisting of a pressure reducer, 3 mm air filter and magnetic valve, keeps the light gap and the integration cylinder of the film gate dust free.

For cleaning the film drive mechanism, SCANITY is equipped with a compressed air nozzle. The nozzle with tube can be pulled out for cleaning the film deck or drive mechanism.



Figure 29: Compressed Air Nozzle

Bending the Nozzle will start the airflow.

3.13 Film Drive Automatics

3.13.1 Film Auto Stop

The film drive will be stopped automatically whenever the end of film is reached.

CAUTION: The AutoStop function is only working properly if the bobbin size is set correctly.

3.13.2 Film Drive Failsafe Handling

In case the servo system detects any critical situation in the film transport it will fall automatically into a failsafe mode to minimize the risk for the film material.

This will e.g. happen for example if there is any mechanical blocking in the film path. The button Filmdeck Standby will turn off then. When the problem is fixed, press Standby and continue scanning.

3.14 Thermal Switching Off

To avoid overheating problems caused by too high temperature of the outgoing air, a thermal switch is installed at the top of the unit. Mains will be switched off when the exhaust air exceeds a temperature of $55^{\circ}\text{C} \pm 4^{\circ}\text{C}$ ($131^{\circ}\text{F} \pm 39^{\circ}\text{F}$).

Digital Film Technology GmbH guarantees operation up to a maximum ambient temperature of 35°C (95°F). The temperature of the exhaust air is normally by 10°C (50°F) higher than the intake air. If the ambient temperature rises to 40°C (104°F) and higher, damage to a running system is possible.

In such a case the machine is disconnected from the mains and further operation is only possible after the ambient temperature was reduced.

The thermal switch is performed with a hold function and the mains voltage can only be switched on via a reset button of this switch (see figure below).

In case the film scanner cannot be repowered

- Set the Power switch in position "off"
- Open the rear doors
- Push the reset button of the internal thermal switch
- Close the rear doors.
- Switch on the scanner as usual



Figure 30: Terminal Switch Reset Button

3.15 Manual Emergency Switching-Off

In an emergency case, the film scanner can be switched off immediately with the Power switch (on the front) without any risk for the film scanner or the film.

3.16 Audio Ingest

As an option the SCANITY can be equipped with different Audio Scanner. The following sound-on- film formats can be scanned:

- 35 mm optical analog (1)
- 16 mm optical analog (2)
- 16 mm magnetically analog (3)

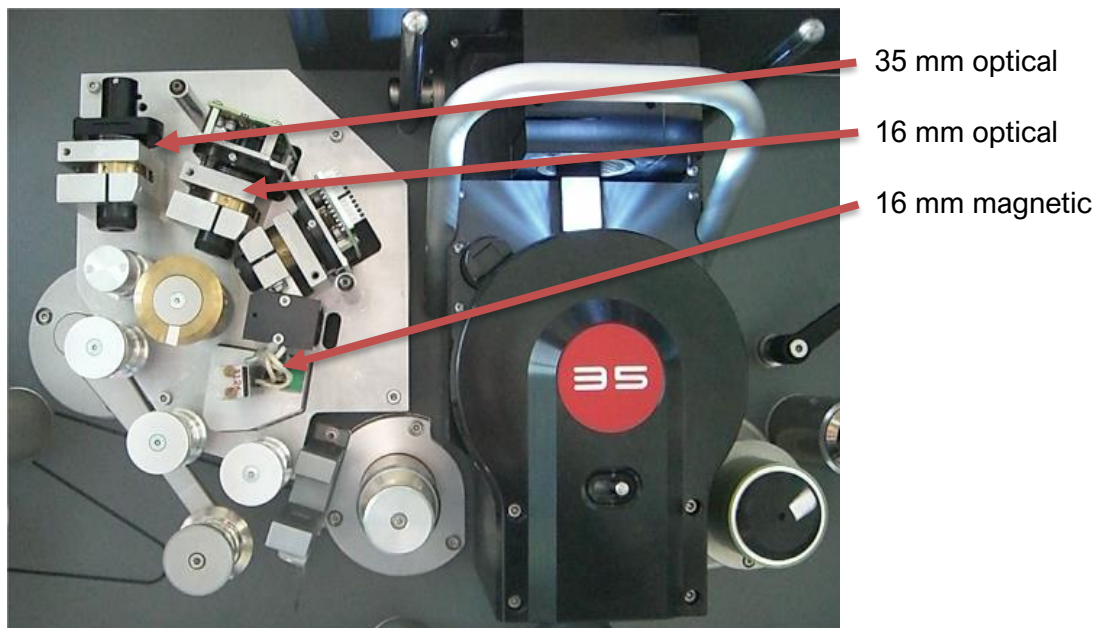


Figure 31: Scanity Audio Scanner

The different sound formats will be delayed automatically in order to get lip synchronization during ingest.

4. How to start

The following chapters contain information and instructions how to start and use SCANITY application for the first time.

4.1 Power on SCANITY

- Switch on the mains power switch
- Wait 15 seconds
- Open the lower right door and switch on the workstation
- Start the SCANITY application using the launcher present on the Desktop

After power-up it takes several minutes before the machine is ready. After 90 minutes warming-up time, all characteristics are stabilized.

4.2 Startup Dialog

The startup dialog contains a Login button, an Admin button and a Quit button to close the SCANITY application.



Figure 32: SCANITY Startup Dialog

4.3.1 SCANITY Login

To login, select the user account you want to work with, type in a password if necessary and hit the enter key on the keyboard or click the login button.

The user account Admin is a default created user account with no password but with admin rights.

4.3.2 Enter the SCANITY Admin Section

To get access to the admin section of the Startup Dialog, select a user account with admin rights. If necessary, enter the password of the account in the password field and hit the enter key on the keyboard or click the Admin button. If a user without admin rights tries to log in to the admin section an error message appears.

4.3 Admin Section

The admin section of SCANITY Film Scanner allows to create, edit and delete production templates, productions and user accounts.



Figure 33: SCANITY Admin Section

4.3.1 Template

The Template section offers the possibility to create own production templates. The created production template will be stored and could be used for every following production.

A click on the New button opens a new window where the settings for the new production can be entered.

Figure 34: New Template

4.3.2 Production

The production section in the Admin area shows all created productions and allows the user to delete or edit an existing production or create a new one.

4.3.2.1 Create New Production

Perform one of these methods to create a new production:

- Select a template production and click on the New button. This will copy the settings of the template to a new production
- Right click on an existing production and select create Copy

4.3.2.2 Edit Production

If you want to edit an existing production, first select one, and then press the Edit button. The appearing window looks identical to the "creation of a new production" window.

4.3.2.3 Production Settings

For an overview of the New/Edit Production Data window and the possible settings in it, refer to Section 9. Production Page.

4.3.2.4 Delete a Production

To delete an existing production, select the one to be deleted and press the Delete button.

A warning message will ask if the production should really be deleted. If the user answer Yes, the production will be deleted.

In addition, a dialog appears with the choice to delete among metadata as well the image and audio clips, see below.

4.3.3 Accounts

The accounts section in the Admin area shows all created user accounts and enables the possibility to Delete, Edit or Create a user account.

4.3.3.1 Create New User Account

After clicking on the New button, a window will appear where the settings for the new user account can be made.

This window allows to define the Name, Password, Pixmap and the User Rights of the new account.

The two different settings for the User Rights are Regular or Administrator. A regular user cannot change certain settings in the Production Page.

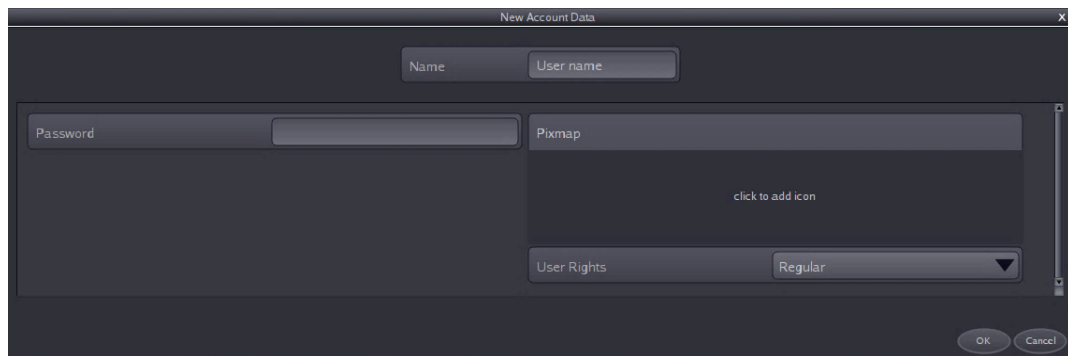


Figure 35: User Account Data Window

4.3.3.2 Edit a User Account

If you want to edit an existing user account, select the one to be edited and press the Edit button. The appearing window looks identical to the Creation of a New Account window.

4.3.3.3 Delete a User Account

To delete an existing user account, select the one to be deleted and press the Delete button.

A warning message will ask if the account should really be deleted. If the user answer Yes, the account will be deleted.

4.3.4 Database Button

The Database button of the Admin page will open the Database Maintenance window. It contains different register cards (Info, Check, Repair and Orphaned Clips).

For further information, look at the following screenshots and brief descriptions.

4.3.4.1 Info

The Info section of the Database Maintenance window displays this information about the used database:

- Server version and name
- All clients connected to it

It also includes a Refresh button to update the info view.

4.3.4.2 Check

The Check section of the Database Maintenance offers the possibility to search the database for errors. It is possible to choose the test option that is to be performed. The selectable options to test the database are:

- All Checks
- Check Tables
- Check Connections
- Database structures

4.3.4.3 Repair

The Repair section of the Database Maintenance has a pull-down menu, offering the possibility to repair and/or cleanup the database.

The selectable options of this pulldown menu are Cleanup Database and Repair Tables.

Cleaning up the Database means that all the temporary and no longer needed data is deleted.

The Repair Tables option tries to fix the tables of the database if they are damaged or include some errors.

4.3.4.4 Orphaned Clips

This feature finds all Clips which are registered in the database but could not found on disk.

With the button Remove, the concerning entries and all associated metadata can be deleted from the database.

Note: It might happen that a disk drive is not mounted and so the utility finds a lot of orphaned clips. Please check this before removing the clips.

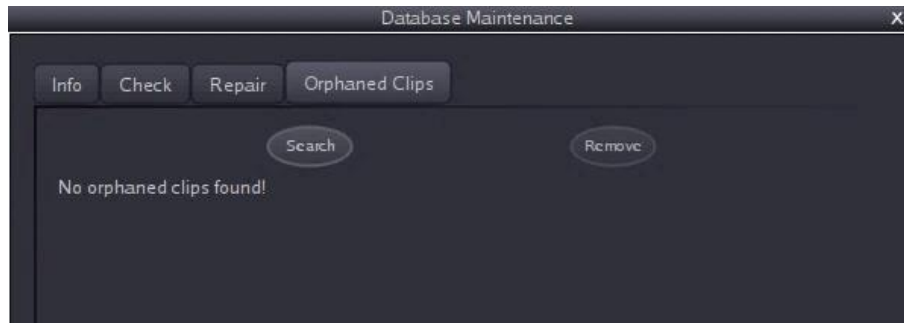


Figure 36: Maintenance Window - Orphaned Clips

4.4 Setup of SCANITY

Before using SCANITY, it is recommended first to look at the Setup Page section in this Manual. An initial setup of the SCANITY application should be performed before working and ingesting clips with SCANITY. It is, however, possible to change settings at any time while working with SCANITY.

To read the Setup Mode section and get information about all relevant settings that can be made and/or adjusted, refer to Section Setup Page on page 279.

4.5 Power off Scanity

- Exit the SCANITY application
- Shut-down the workstation
- Switch off the mains power switch

Note: When switching off the scanner, no film should be threaded!

5. Graphical User Interface Overview

The following section is designed to provide a brief overview of the SCANITY Graphical User Interface (GUI).

The GUI application is divided into the following different pages:

- **Ingest Page**
Refer to Section 6. Ingest Page
- **Batch Page**
Refer to Section 7. Batch Processing Page
- **BG Task Page**
Refer to Section 8. BG Task Page
- **Production Page**
Refer to Section 9. Production Page
- **Setup Page**
Refer to Section 10. Setup Page

5.1 Software Version

To check the software version installed, press the small About icon on the lower left of the SCANITY GUI.



Figure 37: Scanity Software Version

Close the window by pressing OK.

5.2 General Controls

5.2.1 Main Popup Menu

This menu comes up when you move the cursor to the lower bottom of the GUI (Swipe Menu) or use the Hotkey Alt+X.



Figure 38: Main Pop-up Menu

- **Quit**
Will close the application. If something in the production was changed and not saved, the system asks automatically whether to save the changes or not.
- **Minimize Application**
Will minimize the application to the task bar.
- **Lock GUI and Panels**
Will lock the GUI and panels for any input.
A dialog will appear after clicking on the Lock GUI and Panels option to notices that the GUI is locked. Press OK to unlock the GUI.
- **Ingest**
Will switch to the Ingest page, see Section 6. Ingest Page.
- **Batch**
Will switch to the Batch page, see Section 7. Batch Processing Page.
- **BgTasks**
Will switch to the BgTasks page, details see Section 8. BG Task Page.
- **Setup**
Will switch to the Setup page, see Section 10. Setup Page.
- **Production**
Will switch to the Production page, see Section 9. Production Page.
- **Load/Save**
Load or save a different Shootday.
- **Import/Export**
Import or Export an Edit Decision List EDL. For details see Section 6.8.8 Import / Export Transfer Lists
- **Load/Save Transfer List**
Loads or saves a transfer list in the internal format which contains all timecode or keycode entries.
- **Panel Visibility**
Opens the Panel Visibility Window and allows the user to make a panel visible or invisible to save space on the monitor.
- **Undo**
Reverses the latest changes.

5.2.2 Expandable/Collapsible Panels

Each GUI panel has a small button on the upper left corner which is used to expand or minimize the panel. Pressing this button opens and closes the window. It is also possible to expand or minimize panels with a double click on the header bar of the panel. In addition, all panels have splitters to adjust the size horizontally, if required.

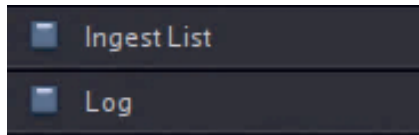


Figure 39: Expandable/Collapsible Panels

5.2.3 Hidden Popup Menus

The SCANITY GUI uses some context menus which are accessible with a right mouse click on a symbol.

5.2.4 Drag and Drop

Drag and drop is available throughout the application. It may be used for dropping clips in the preview window or moving clips between browsers.

5.2.5 Table Views

5.2.5.1 Sorting

Table Views can be sorted by one column (Normal sort) or more columns (Multiple sort).

To reset the sorting, make a double click anywhere in the heading of the table view. The Normal sorting and the Multiple sorting are described in below:

Normal Sorting

To sort a column in a table in an ascending order, click on the left mouse button holding the cursor on the appropriate column header of the corresponding column. Clicking on the same column again, changes the column to a descending order. Clicking on another column will sort the contents of that table view of that column, and so on. A sorted table is indicated with an up/down triangle in the corresponding column.

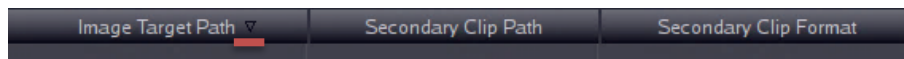


Figure 40: Table View - Normal Sorting

Multiple Sorting

To initiate a multiple sorting in a table, click with the left mouse button on the column header of the corresponding columns while the Shift-Key on the keyboard is pressed. Then a sorting indicator in each column will additionally display a number that indicates the new position it has in the sorting order (the numbers indicate the order in which the columns were sorted). For an example, see the following screenshot.

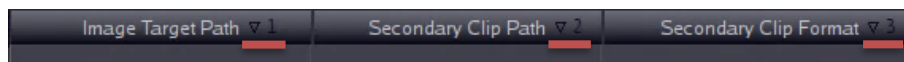


Figure 41: Table View - Multiple Sorting

5.2.5.2 Column Ordering

To change the order of columns, simply drag a column to the new desired location.

5.2.5.3 Selecting Rows

- To select a single row, simply click it.
- To select multiple rows, press the Shift or Control keys while clicking the left mouse button.

5.2.6 Resetting Controls

Some Controls can be resetted using the context menu from the right mouse button.

5.3 Log Panel

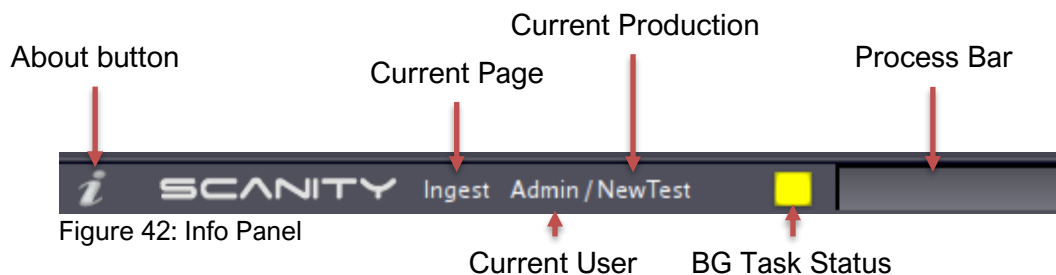
SCANITY Film Scanner includes a Log Panel to show error messages or give some information following an import of a file, for example:

Whenever a new message (etc. info, error, ...) is append to the log panel or if the log panel is resized, the panel automatically scrolled to the bottom – unless any arbitrary text is selected. That means for instance:

- If one opens the log panel, always the last messages are visible.
- If one scrolls within the log panel and a new error appears, then this new error will be visible (the scroll action itself is disturbed).

5.4 Info Panel

- **About Button**
A click opens the About Window, that shows the same content (e.g. SCANITY Version), like the splash screen after starting the application
- **Current Page**
Shows the name of the current page, like Ingest, Batch, Setup or Production.
- **Current User**
Shows the name of the current user account.
- **Current Production**
Shows the name of the current used production.
- **Current Shoot Day**
Shows the name of the current shoot day.
- **Background Task State**
Shows the state of the background tasks process. For more information, refer to Section 8.3 BG Render State Field.
- **Process Bar**
Shows an overview of the process for longer processes.



6. *Ingest Page*

The following section gives an overview of the Ingest Page of SCANITY and describes how to handle and ingest video clips and files.

It is assumed that a SCANITY User Account and a new Production has already been created and configured. If not, refer to refer to Section 4. How to start to see and learn how a new user account and a new production can be created.

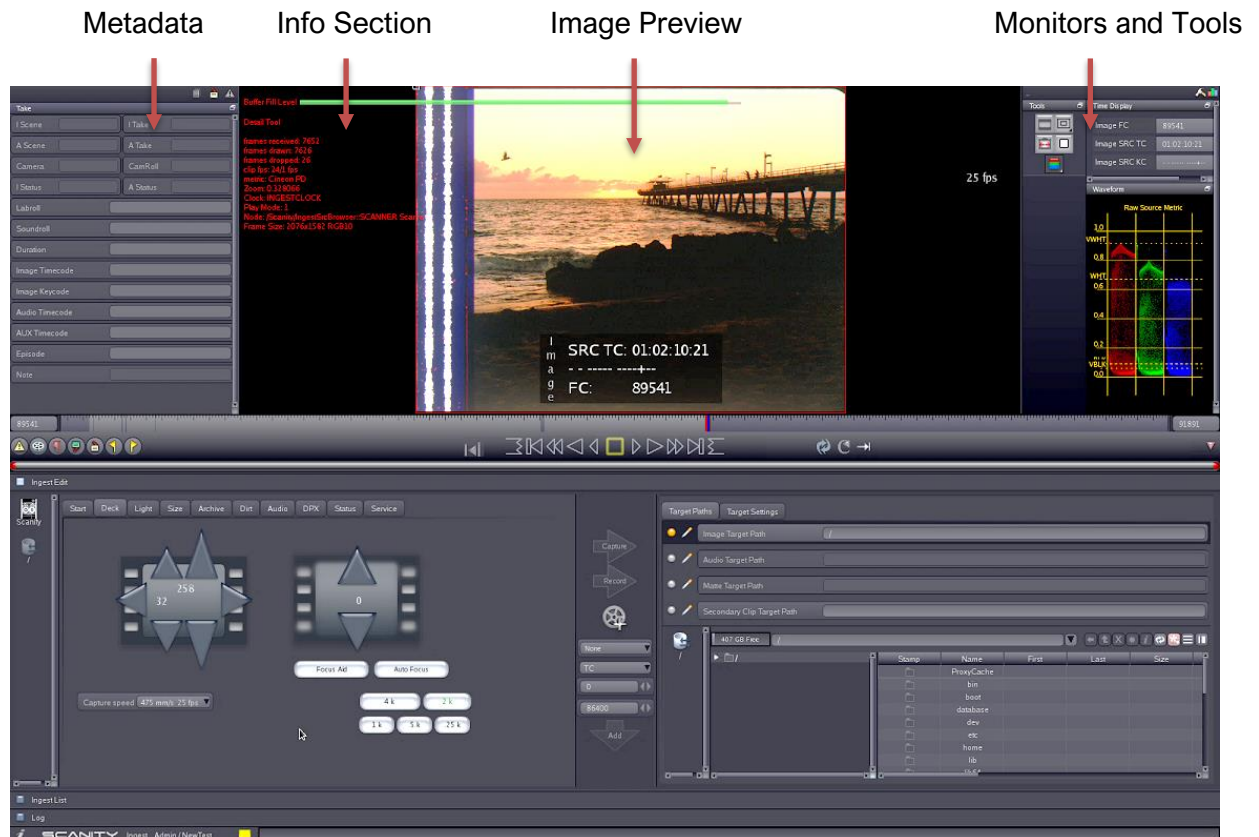


Figure 43: Ingest Page, Single Monitor Setup

In the following all these elements are described in detail.

6.1 Image Preview Window

The preview window allows to view images dependent on the device selection either from:

- the scanner
- from the local storage

Images from the scanner can be either:

- live images during Play
- or Proxy images which were automatically recorded during Play.

The preview window allows the user to get a quick overview of an ingested video clip. It also functions as a preview monitor, if the application is connected to another storage.

6.1.1 Proxy Image Cache

During Play Fwd and Visible Fast Fwd the scanner stores all scanned images automatically in a low-resolution cache. It has a resolution of:

- 0.25 k in Scanning Resolutions of 0.25 k and 1 k and in Visible Fast Fwd.
- 0.5 k in all other Scanning Resolutions in Play Fwd.

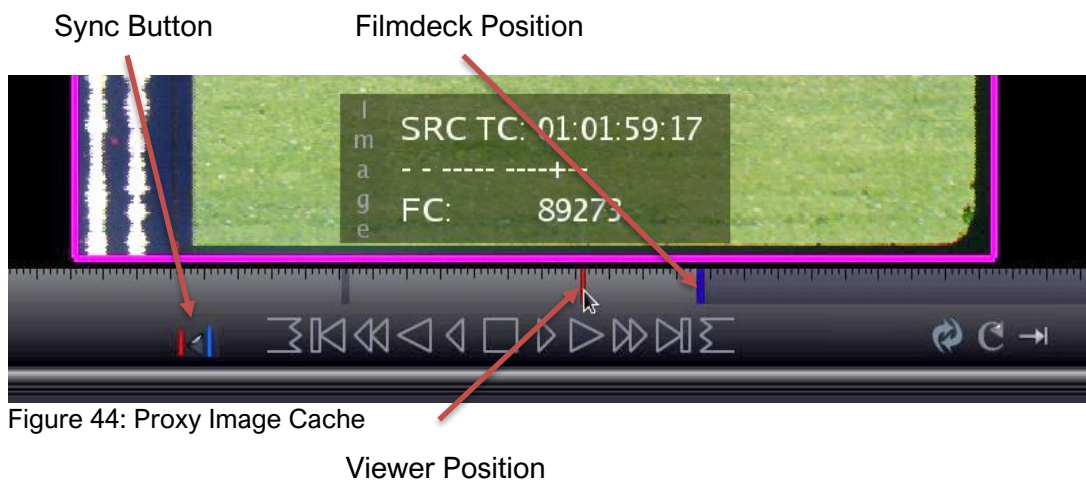


Figure 44: Proxy Image Cache

You can move the viewer position into the cached area by:

- Dragging the cursor with the mouse. Filmdeck and Viewer Position get out of sync.
- stepping back / forward. Filmdeck and Viewer Position get out of sync.
- play/shuttle back. Filmdeck and Viewer Position keep synchronized. The Filmdeck is moving continuously to the new viewer position to be able to play out immediately.

Cached images are displayed, marked with the text Cache.

You can now step to a certain position and set the timecode there.

When Filmdeck and Viewer Position are out of sync:

- The Sync button is enabled. Pressing it moves the Filmdeck to the viewer position.
- All Filmdeck controls except Spool and Unthread Film, manipulate the viewer showing cached images. The Filmdeck is not moved in this case.
- Spool and Unthread Film move the Filmdeck. If stopped, the Filmdeck and Viewer are in sync again.

If you move the viewer cursor to a position outside of the cache, the image will be black, and it is marked with “No Cache”.

If scanner settings are changed, already cached images are marked as “Dirty Cache”.

6.1.2 Preview Window Display Options

This preview window cannot be switched off. It is used to display both audio and image data. Click on the small View Layout button in the time bar to split it into two windows.

6.1.2.1 Setting Button

There is a Settings Button located on the right of the time bar, which opens a Settings menu to offer the possibility to define certain settings for the preview window.



Figure 45: Preview Monitor Pull-Down Menu

The pull-down menu is located to the right of the timebar and contains the following:

- **Show Borders**
Sets a red border around the clip in the preview window.
- **Show KC/TC**
If this setting is enabled, the keycode/timecode will be displayed in the preview window.
- **Show Speed**
Displays an information field in the upper right corner in the preview window, containing the playout speed in fps.
- **Show Info**
Displays an information field in the upper left corner of the preview window, containing, for example, the resolution speed and the path of the clip.
- **Show Metadata Window**
Allows to enable or disable the metadata window.
For more information, refer to Section 6.7 Metadata Window.
- **Metric**
Displays the currently selected color metric and enables you to change the color metric. See Section 11.5 Screen Color Metrics.
- **Gamma**
Adjusts appearance of images by modifying the image viewer color metric.

- **Speed**
This option allows the user to modify the playback speed. If you scale down the value of this field, the clip will be played slower and if you scale up the value, the clip will be played faster. This applies only to playback of an already scanned clip.
- **Step**
Adjusts the number of frames that are displayed when the step is used. For example, if step is set to 3, every third frame will be visible in Step.
- **Play Mode**
Settings used for playback from storage
 - **Strict RT**
The default playback speed will be used. When the default speed is not possible, the transfer stops.
 - **All Frames**
The player shows all frames and reduces the playout speed if necessary.
- **Preview Off**
This option blocks the view in the preview window. This means that the preview window is still active and visible, but the clip will not be shown in the preview window. Instead, a black area will be displayed.

Other information in the preview window, e.g., Rol, timecode or Info will, however, be displayed if they are selected in the pull-down menu.

6.1.2.2 Context Menu

Click on the right mouse button in the preview window opens the following context menu:

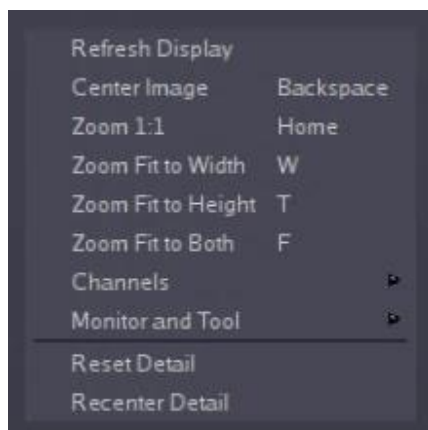


Figure 46: Preview Window Context Menu

- **Refresh Display**
Refreshes the window.
- **Center Image**
Centers the image in the middle of the window.
- **Zoom 1:1**
Restores the image to the original size.
- **Zoom to Fit Width**
Zooms the image to the maximum width.
- **Zoom to Fit Height**
Zooms the image to the maximum height.
- **Zoom to Fit Both**
Zooms the image to the maximum width and the maximum height.
- **Channels**
Displays color channels (calls a sub-menu).
 - **View RGB**
Displays the red, green and blue channels.
 - **View Red Channel**
Displays the red channel.
 - **View Green Channel**
Displays the green channel.
 - **View Green Channel**
Displays the green channel.
 - **View Blue Channel**
Displays the blue channel.
 - **View Alpha Channel**
Displays the alpha channel. In SCANITY this is the dirt matte.
- **Monitors and Tools**
This enables or disables the Monitor and Tools windows.
For more information about the Monitor and Tools windows, see Section 6.3 Tools and Monitoring Window.

6.1.3 Image Viewer Limitations

When using Output File Resolutions of 4K / 16bit not all images might be displayed in the viewer due to system bandwidth limitations. The viewer might drop images in case of higher scan speed.

However, all images are correctly stored on disk in any case.

6.2 Time bar

All buttons and options of the preview controls are described in the following.



Figure 47: Time Bar Controls for Metadata



Figure 48: Time Bar Controls for Filmdeck movement



Figure 49: Time Bar Controls for Viewers

6.2.1 Current Frame / Timecode

Indicates the current frame. Navigate to any frame by entering the required frame number in this field.

6.2.2 Last Frame / Timecode

Indicates the last frame of

- the film reel, if the Scanner Device is selected
- or a Clip, if the local storage is selected.

6.2.3 Metadata Marker Buttons

In the preview controls, there are several buttons available to set the markers. All different marker types are described below.



Figure 50: Metadata Marker Buttons

- **Anomaly Marker**
Is used to mark a specific frame and enter a note to that. It appears in the Anomaly section of the metadata window (see Section 6.2.3 Metadata Marker Buttons). There you can enter a note to the marker. So, it is possible to mark faulty sections and locate those places later.
- **Reel Change Marker**
Is used to mark keycode changes or jumps. See Section 11.3.3 Reel Jump Detection.
- **Scene Marker**
Is used to mark scene changes. It could also be used to mark camera flashes. Scene Change detection is done by calling the related dialog Detect Scene Changes in the context menu of the source and target browsers. A Scene Change marker is added automatically to the appropriate position. The Scene change detection is automatically performed as a background process in the BG Tasks Page, see Section 8. BG Task Page.
- **Tail Take Marker**
Is used to mark a special type of slate which is placed at the end of takes. It does not contain any metadata information.
- **Head Take Marker**
Is used to set and define places with slates in image material. For video clips, it is only possible to set the take markers manually. There is no automatic detection. Head Take Markers can also be set during image ingest. A Head slate is used to create metadata entries like scene and take information.
- **Set In-Point and Out-Point**
In- and Outpoint are used for:
 - Creating an Ingest List, see Section 6.6.7 Adding Ingest List Entries
 - Performing a Loop, see Section 6.2.7 Loop Mode

To select a marker, use the mouse cursor to click on a marker. When a marker is selected, it becomes highlighted and the corresponding entry in the log section (or anomaly section) of the Metadata window is selected.

To select more than one marker, press down the Ctrl key on your keyboard and select as many markers as you wish.

6.2.4 Time bar Context Menu



Figure 51: Time bar Context Menu

Most entries in this menu are almost self-explanatory. For example, the Clear All Anomaly Markers entry will clear all created anomaly markers, it does not matter whether an anomaly marker was selected or not.

- **Move Marker to Current Frame**
A selected Marker is moved to the current viewer position.
- **Reset Zoom**
See Section 6.2.5 Timeline Zooming.
- **Keycode Renumber**
If there is a clip with wrong keycode values (no keycode at all, missing format string, jumps and errors) it is possible to correct/set those keycode values manually. See Section 11.3.5 Keycode Renumbering.

6.2.5 Timeline Zooming

The scale of the timeline can be stretched to find specific frame or timecode positions. Thereto a zoom bar is located underneath the time bar.



Figure 52: Zoom bar

Click with the left mouse button on the left or right red dot of the bar and scale down the bar to zoom into the timeline. Reset this view with Reset Zoom from the Context Menu.

6.2.6 Filmdeck Controls



Figure 53: Filmdeck Controls

Note: PlayFwd double click starts the Filmdeck in any case. This behavior helps to start the Filmdeck in PlayFwd even if the Filmdeck and the Proxy Cache are out of sync. Double click to a Spool or Unthread button will execute a Fast Spool operation (if enabled in the Setup Page). During Fast Spool operation the framing and the frame counter correlation will get lost!

6.2.7 Loop Mode

The Loop mode can be set to normal, loop, or ping-pong by clicking the icon located in the right of the Filmdeck controls. The behavior is different, depending on the current source device.



Figure 54: Loop Modes

6.2.7.1 Attached Storage

The bounds of the loop are start/end of the current clip.

- **Normal**
Stops when play-out reaches the end (or the beginning, depending on the playback direction).
- **Loop**
Starts play-out again when it reaches the end (or the beginning, depending on playback direction).
- **Ping-Pong**
Plays the clip or audio file forward, then reverse.

6.2.7.2 Scanner

The bounds are the area marked by the In- and Outpoint.

If In- and Outpoint are not set, the bounds are start/end of the film reel.

- **Normal**
Normal operation, no stop at In- or Outpoint
- **Loop**
When the scanner reaches one of the markers, it reverses the playout direction up to the other marker.
- **Ping-Pong**
When the scanner plays to the outpoint, it shuttles back to the In-Point, playing out there again.

6.2.8 Clear Cache



Figure 55: Clear Cache Button

To clear the cache, there is a button located besides the play control buttons. This button is only available, if SCANITY is selected as source device.

6.2.9 Rescan Button



Figure 56: Rescan Button

When the filmdeck is stopped, this function allows to rescan the currently visible image. This button is only available, if SCANITY is selected as source device.

6.3 Tools and Monitoring Window

The SCANITY application provides a set of tools and some monitor windows, for example, waveform view. These tools and monitor windows are located on the upper right corner of the GUI, to the right of the preview window.



Figure 57: Tools and Monitors Icon

The Tools and Monitors windows can be switched on or off to save space. Click on the small icons in the upper right corner of the GUI or use the context menu of the Preview window.

6.3.1 Tools Window

The following shows an overview of the available tools. These tools are used when viewing the film in the preview window.

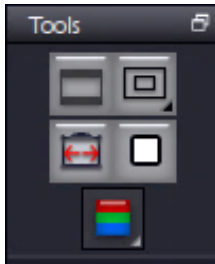


Figure 58: Default Toolset

- **Letterbox**
Letter boxing is the practice of transferring film shot in a wide screen aspect ratio to standard-width video formats while preserving the film's original aspect ratio. The resulting video image has mattes (black bars) above and below it; these mattes are part of the image (i.e., of each frame of the video signal). Letterbox cuts the image to the chosen size. Holding the Letterbox button down with the left mouse button for a while opens a submenu where 14 predefined sizes and Custom can be chosen.
- **Graticules**
Shows the safe zones for HD material. Holding the Graticules button down with the left mouse button for a while opens a submenu where 14 guides and Custom can be chosen.
- **Always Fit Image**
Will adjust the image to fit the size of the preview window. This is useful if the size of the panels is changed often, thus the preview window and its image are not always congruent. This feature ensures constant congruence.
- **Monitor ROI**
The Monitor ROI allows to examine a selected image region with the waveform monitor. To do that, select the option in the tools window and define a new region (long click or right mouse click) with the mouse.
To reset the monitor ROI to the full image, deselect the option in the tools window.
- **Color Mode**
Opens a submenu showing all possible color channels. The currently selected mode is shown in the general color mode button. The color mode types are:
 - RGB
 - R, G, B
 - Alpha

6.3.2 Monitors Window

The Monitors Window consists of several display views plus a Time Display and a Detail view.

The Detail view is used to magnify a certain area to show the color values of that section. The three display views Waveform, Vectorscope and Histogram are different ways of showing the color distribution whereas the 'peak level view shows the peak levels of an audio file.

All views can be displayed by opening the right mouse menu in Monitor and Tools while the mouse cursor is over the preview window. Clicking on the selected view opens the monitor window. An orange circle in the right mouse menu indicates that the view is activated, whereas a grey circle means that the view is disabled.

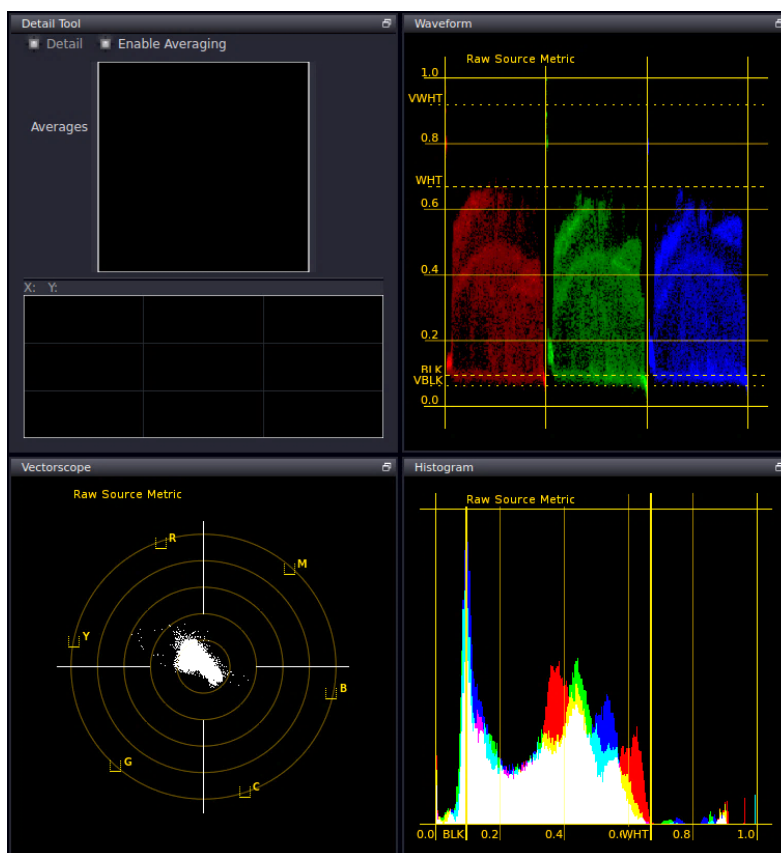


Figure 59: Monitors

6.3.2.1 Monitor Metrics

All Monitors have a context menu with at least the entry Raw Source Metric.

- If Raw Source Metric is on, the monitors show the characteristics of the original image.
- If Raw Source Metric is off, the monitors show the characteristics of the Preview display. See Section 11.5 Screen Color Metrics for Metrics explanation.

6.3.2.2 Time Display

The Monitors Window contains a Time Display that shows information about the timecode/keycode (when available) of the currently displayed image.

6.3.2.3 Detail Tool

The Detail Tool includes the option to magnify a special area of interest. The small icon in the upper left corner of the detail window must be clicked on.

When Detail is activated, two white boxes appear in the preview image. Moving both boxes will change the magnified area. The content of the magnified area is displayed in the viewer of the Detail window. The size of the outer box can easily be changed by clicking and dragging the edges of the box. The image information will be updated in the Detail window.

The inner box is fixed in its size. Its function is to show the color information of the pixels inside. The detail view box itself is divided into a 3x3 matrix. Each field of the matrix displays the color values for its related pixels.

Furthermore, the x and y coordinates of the center point, set for viewing the detail, are given.

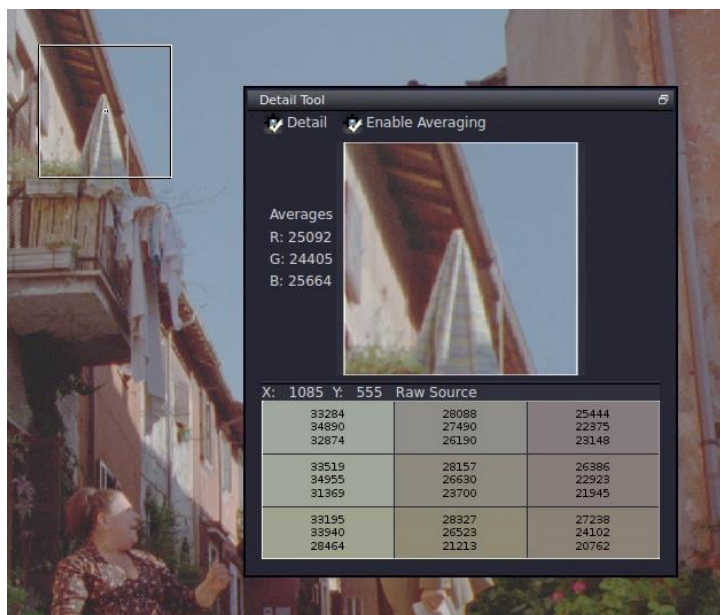


Figure 60: Detail Tool

Averaging

When the button Enable Averaging is enabled, the average value of all pixels in the outer box is displayed.

6.3.2.4 Waveform Views

The Waveform view is chosen by default when opening the Monitors Window. It offers two viewing options - Superimposed and Parade. These can be activated from the context menu of the waveform view.

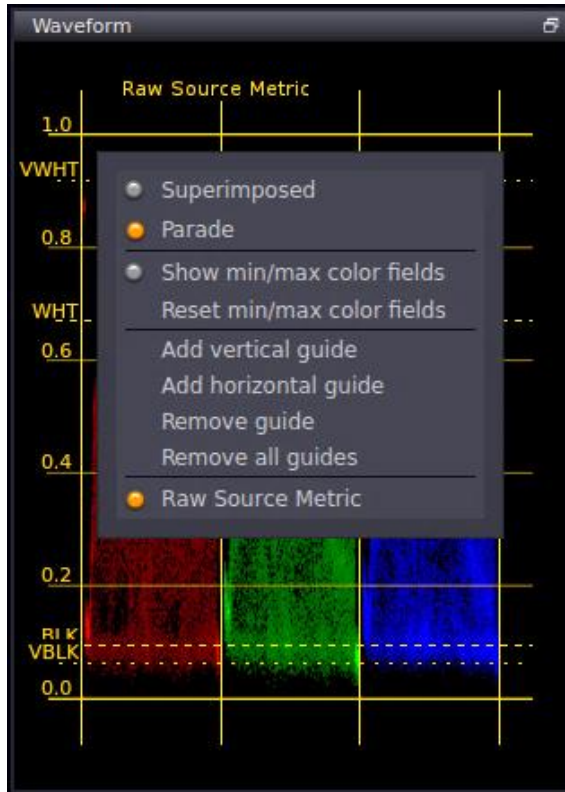


Figure 61: Waveform Context Menu

- **Superimposed**
Displays the full color spectrum of the current image
- **Parade**
Divides the signal into its three components Red, Green and Blue

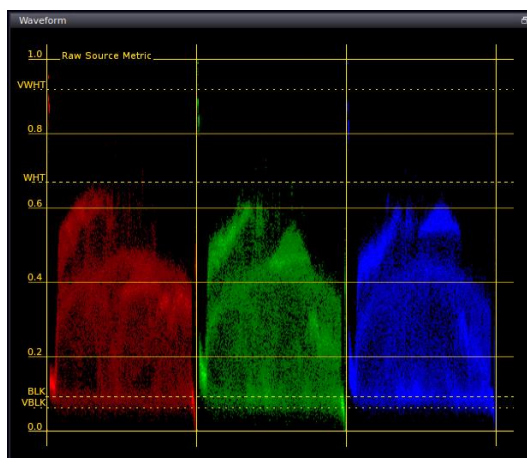


Figure 62: Waveform Superimposed

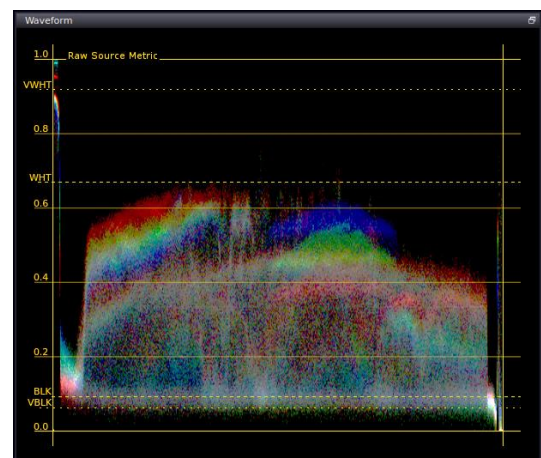


Figure 63: Waveform Parade

The Waveform Monitor allows also to define horizontal and vertical reference lines. Therefore, the monitor contains a context menu for adding and removing guides as shown in the figure below.

A new added reference line will appear at the zero position and can be modified with the mouse. It is possible to delete a single reference line by mouse selection and to delete all guides by using the context menu. In parade mode the vertical reference lines will be shown in R, G and B area. The preset colors for the reference lines are red (vertical) and blue (horizontal).

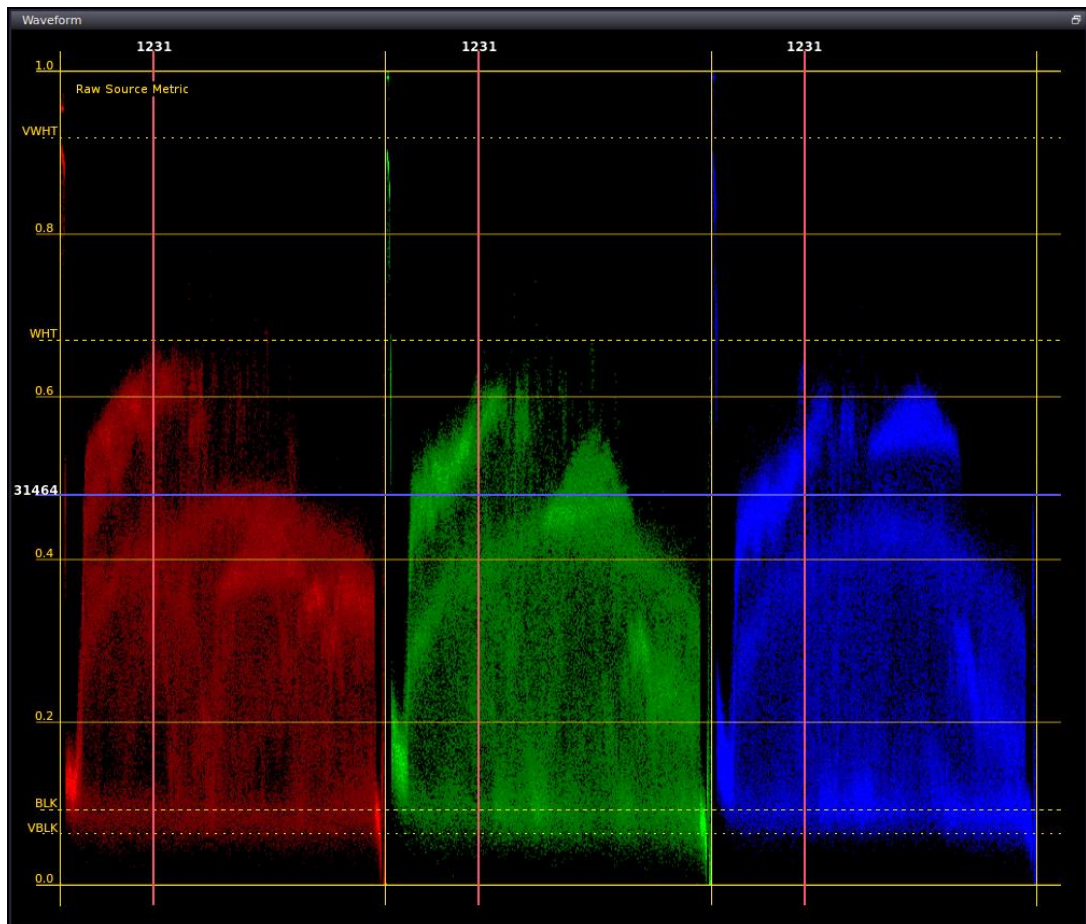


Figure 64: Waveform Reference Guides

It is possible to zoom the y axis to show an interesting range. To do this, select Show min/max color fields from the context menu. Then you can either

- type a new number value into the min/max fields
- or drag the mouse left/right to modify the value

To reset the display, select Reset min/max color fields again.

Note: Since SCANITY Software V2.0, the displayed CV's will be based on the image resolution. So, in case of 16bit format the values will be 16bit numbers.

6.3.2.5 Vectorscope Views

A Vectorscope is used in both audio and video applications.

The SCANITY Vectorscope view offers two viewing options, Normal, given by default, and Color.

Color shows the color image information. It can be selected by moving the cursor to the Vectorscope window and making the selection in the pop-up menu.

Vectorscope, at the bottom of the list, must be chosen and Color must be activated. Disabling this will automatically activate the Normal view.

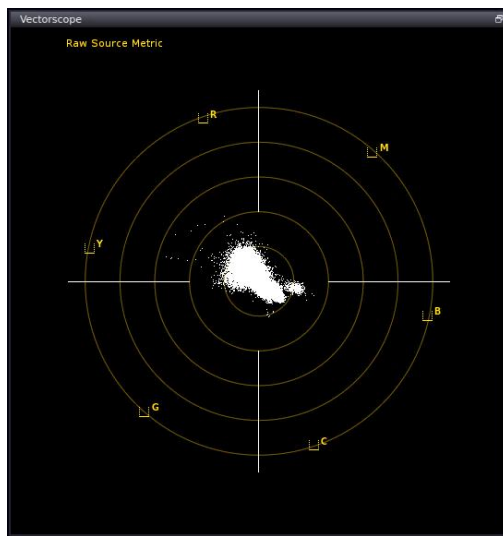


Figure 65: Vectorscope Normal

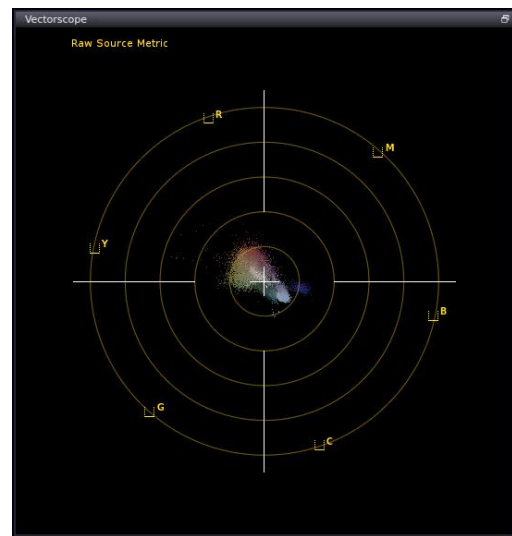


Figure 66: Vectorscope Color

6.3.2.6 Histogram Views

An image histogram is a type of histogram which acts as a graphical representation of the tonal distribution in a digital image. It plots the number of pixels for each tonal value. By looking at the histogram for a specific image a viewer will be able to judge the entire tonal distribution at a glance. The operator can use them as an aid to show the distribution of tones captured, and whether image detail has been lost to blown-out highlights or blacked-out shadows.

The horizontal axis of the graph represents the tonal variations, while the vertical axis represents the number of pixels in that tone. The left side of the horizontal axis represents the black and dark areas, the middle represents medium grey and the right-hand side represents light and pure white areas. The vertical axis, on the other hand, represents the size of the area which is captured in each one of these zones.

The SCANITY Histogram view shows the color histogram of the current image. It is also selected from the pop-up menu (right mouse click). Three types of views are given for the Histogram.

- **RGB Combined**
Displays the Red, Green, Blue and Alpha components of the image colors
- **RGB Separate**
Splits the signal components into Red, Green and Blue and shows each on a separate graph
- **Level**
Displays the sum of the Red, Green and Blue values

They are selected from the pop-up menu of the Histogram view.

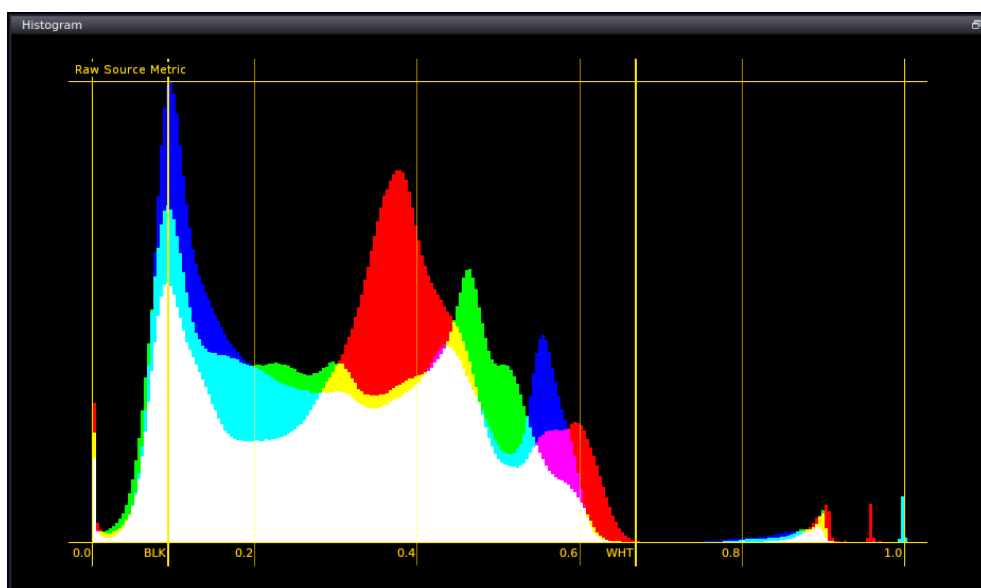


Figure 67: Histogram - RGB Combined

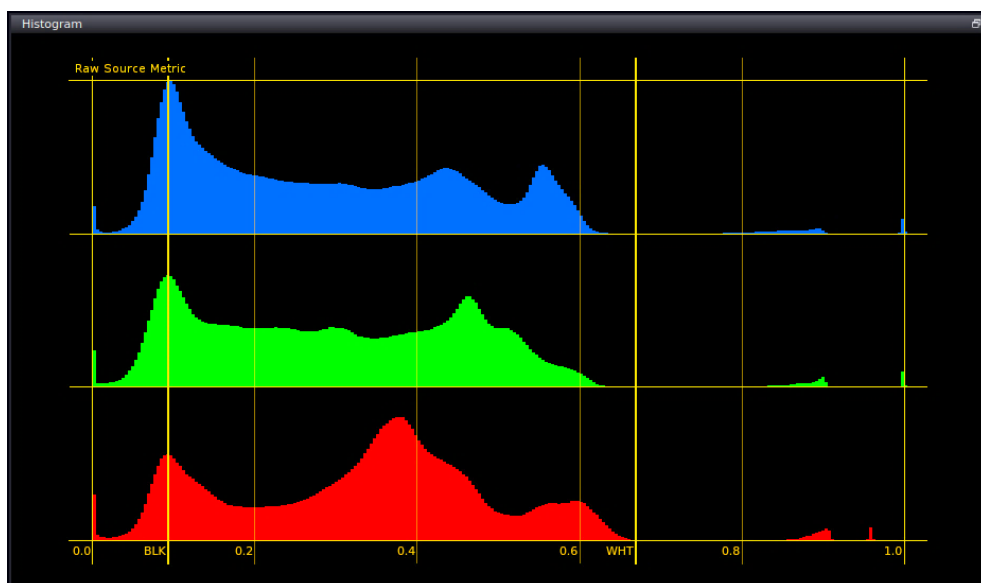


Figure 68: Histogram - RGB Separated

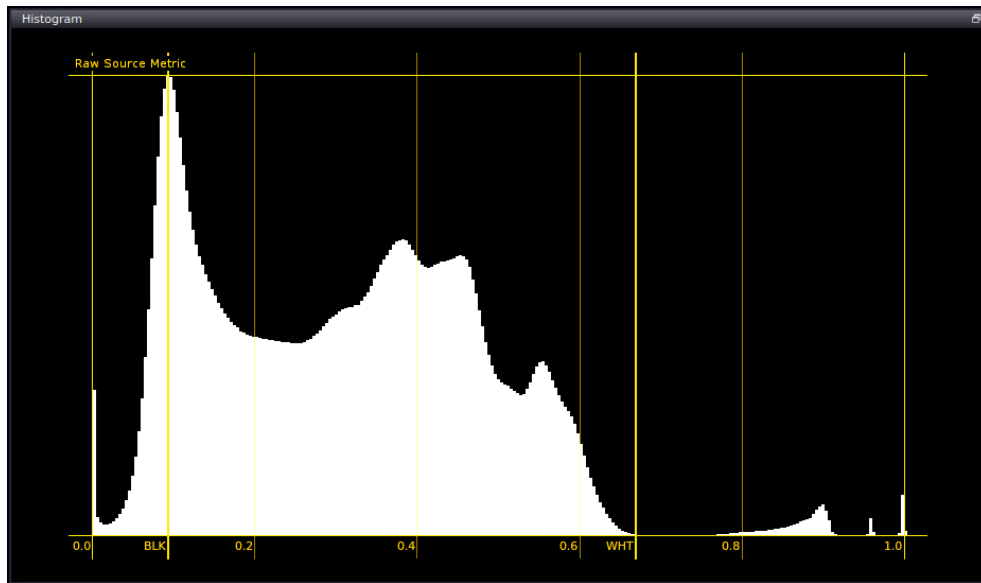


Figure 69: Histogram - Level

The Histogram Monitor also allows to define horizontal and vertical reference lines. Therefore, the monitor contains a context menu for adding and removing guides.

A new added reference line will appear at the zero position and can be modified with the mouse. It is possible to delete a single reference line by mouse selection and to delete all guides by using the context menu. In parade mode the vertical reference lines will be shown in R, G and B area. The preset colors for the reference lines are red (vertical) and blue (horizontal).

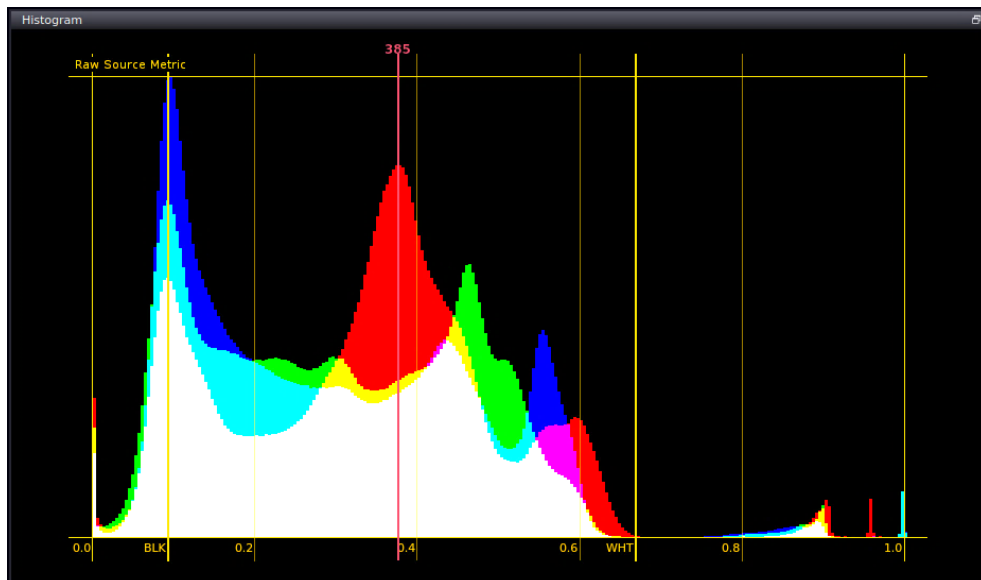


Figure 70: Histogram - Reference Guides

6.4 Device Selection

If SCANITY is selected as source device, the source browser displays several register cards, containing the scanner operation controls.

If a Local Storage is selected as drive, the Source Browser shows the directory structure and files of the selected Local Storage.

If an USB device is connected to the workstation an additional icon appears on the left. The Source Browser shows the directory structure and files of the selected USB device.

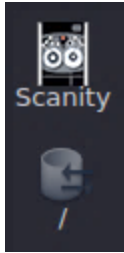


Figure 71: Device Browser



Figure 72: Additional External drive

6.5 Scanner Operation Controls

6.5.1 Start Page

The Start menu page appears automatically after booting the SCANITY workstation. It works top down as start-up flow in order to prepare the scanning process:

- Selectable buttons are highlighted
- Running procedures are displayed with a yellow status light
- Completed processes are displayed with a green status light

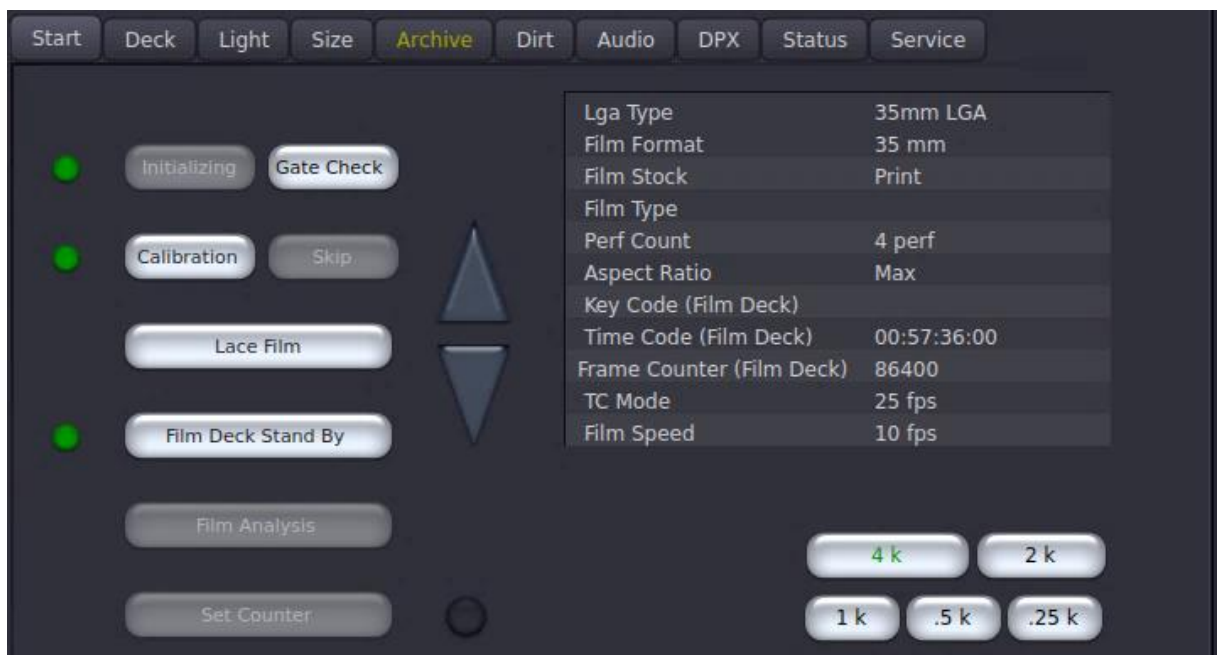


Figure 73: Scanner Start Page

6.5.1.1 Initializing

After starting the SCANITY application, the unit will be initialized automatically. During this initialization phase the status light on the left is lit yellow. That takes 2-3 minutes.

When Initialization is successful, the status light turns to green and the buttons below are active.

In case the status light turns into red after Initialization, some of the available Calibration data are invalid outdates. In this case a new calibration is needed.

6.5.1.2 Gate Check

Gate Check is used to verify that the image captured by the SCANITY exhibits no visible distortions e.g. due to dirt. When activated, a continuous stream of images is displayed in the main SCANITY GUI. These images should be uniform, light grey indicating a perfect condition of the whole optical system. Any particles in the light path like dust or dirt will be visible as more or less dark, vertical lines within the image.

Have in mind that a Calibration run might even calibrate to any dirt in the gate.

Note: If line structures are still visible after cleaning the LGA please do a short calibration before rechecking.

Note: Please do not use this function if film material is in the gate!

6.5.1.3 Calibration / Skip

Performing a calibration effects an automatic pixel non-uniformity, shading and color balance correction.

Caution: Scanner calibration must be done in a good focus position!

- After Startup, the system tries to load data from the last performed calibration
- If new calibration data are available (quick calibration: less than 3 days, complete calibration: less than 14 days), they are loaded, and the status light turns green
- If the calibration data are older, they are also loaded, but the status light switches to red. In this case a new calibration is badly requested. If you like to proceed without a new calibration, you must press the Skip button to use the data anyway
- Pressing Calibration calls a submenu.

Caution: Using old calibration data could cause artefacts and errors in the picture!

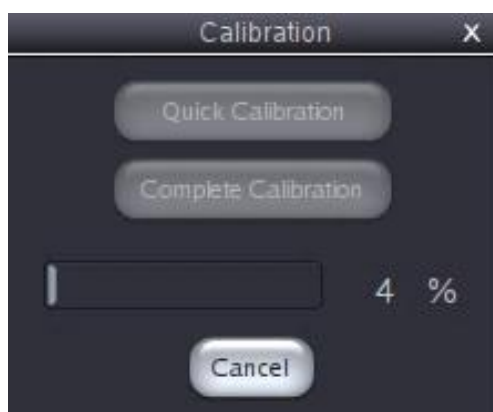


Figure 74: Calibration Dialog

Preparation

If the scanner was off, let it warm up for 45 Minutes
 Insert the LGA you want to use
 Clean the light path

Quick Calibration

Perform a short calibration every day

Complete Calibration

Perform a full calibration once a week

6.5.1.4 Film Deck Stand By

Pressing "Film Deck Stand By" tensions the film.
 The status light turns from yellow to green and the film deck is ready for operation.

6.5.1.5 Set Counter

Pressing Set Counter calls a submenu in order to set the frame counter for the current frame.



Figure 75: Set Counter Menu

- The timecode mode (24/25/30) can be modified in the Production Page
- The frame display (frames/timecode) can be modified in the Setup Page



Figure 76: Set Counter Menu with KeyCode Info

Note: In order to avoid negative counter values please set the value for the supply reel (left reel) not less than 100. The rule of thumb is: Current position minus supply of film of the left reel.

6.5.1.6 Operation Modes

With the Resolution buttons the horizontal resolution used during the scanning can be selected.

6.5.1.7 Keycode Reading Quality

The light the Start menu shows the quality of the detected keycode:



Figure 77: Keycode Quality

Green	Keycode read in good quality
Orange	Keycode read in poor quality
Red	No keycode detected

6.5.2 Deck Page



Figure 78: Scanner Deck Page

6.5.2.1 Framing Adjustment

The frame line can be shifted using the up/down arrows. The larger arrows shift by one perforation hole. The smaller up/down arrows shift by about one 4k line. The left/right arrows shift by one pixel (scan resolution based). The user can store the current settings as default. Default values will be stored for each perf mode separately.

The user can store the current settings as default. Default values will be stored for each perf mode separately. Storing can be done in the Setup Page.

6.5.2.2 Capture Speed

Allows to select the capture speed.

The table is depending on the output resolution and the licensed speed option.

6.5.2.3 Focus Aid

Supports manual focusing. When activated, a continuous stream of images is displayed in the main SCANITY GUI.

6.5.2.4 Auto Focus

The Auto Focus function offers a fast, easy and accurate way of focusing at the beginning of the scanning process.

Operation

- The Auto Focus process starts by clicking the button Auto Focus. During Auto Focus operation all film motion commands are disabled
- Pressing the Stop button stops the Auto Focus process at any time. In this case the original focus position is recalled

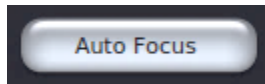


Figure 79: Auto Focus button

6.5.3 Light Page



Figure 80: Scanner Light Page

6.5.3.1 Light Display Bars

The Light Display Bars at the top of the Light Menu Page show the current light level and the available light levels.

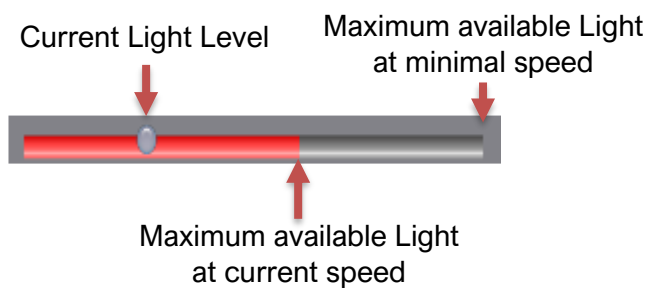


Figure 81: Auto Focus inactive

6.5.3.2 Light R/G/B

Light serves to adjust the intensity of light falling through the film frame. The light must be set to 100% video level.

There are different ways to modify the light levels:

- Touch the respective up/down button with the mouse for each channel, or the RGB buttons for all channels together. While pressing CTRL, the steps will be minimized to 0.1. Otherwise the steps are 0.5.
- The values can be entered directly with the keyboard. Click on the respective channel and type-in the new value.
- Move with the cursor over the channel you want to modify and use the mouse wheel to modify the values.
- Move with the cursor over the channel you want to modify and use the mouse wheel to modify the values.

6.5.3.3 Density Range

The density range control in SCANITY is used to apply a combination of gain and gamma to the characteristic chosen. Thus, it is possible to maintain a good quantization while modifying the look of the images.

6.5.3.4 Positive/Negative

Select the film types Positive / Negative. For more information about film types and stocks, please refer to Section 11.2 Film Stocks and Film Types.

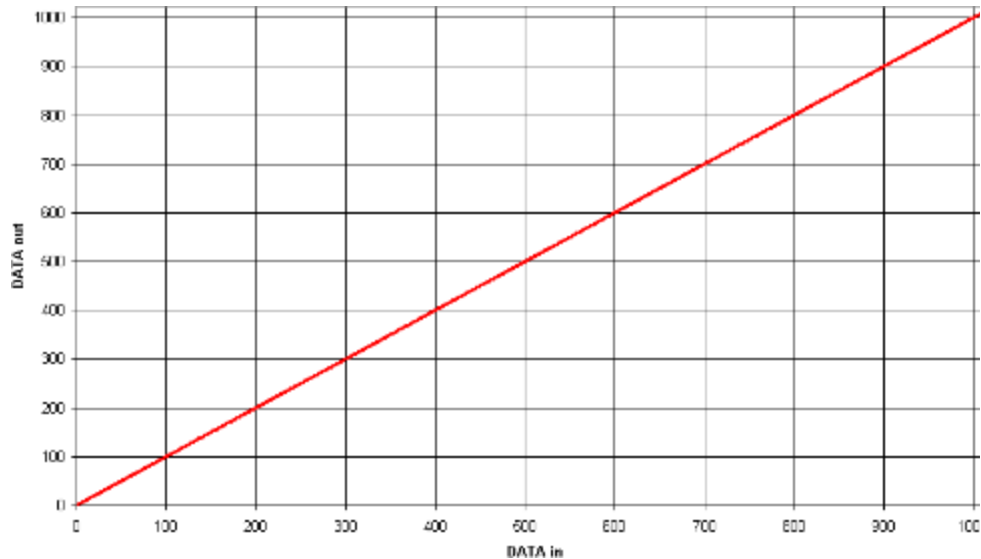
6.5.3.5 ColorSpace Log / Matrix / Delog

For more information, please refer to Section 11.1 LUT - Matrix - LUT.

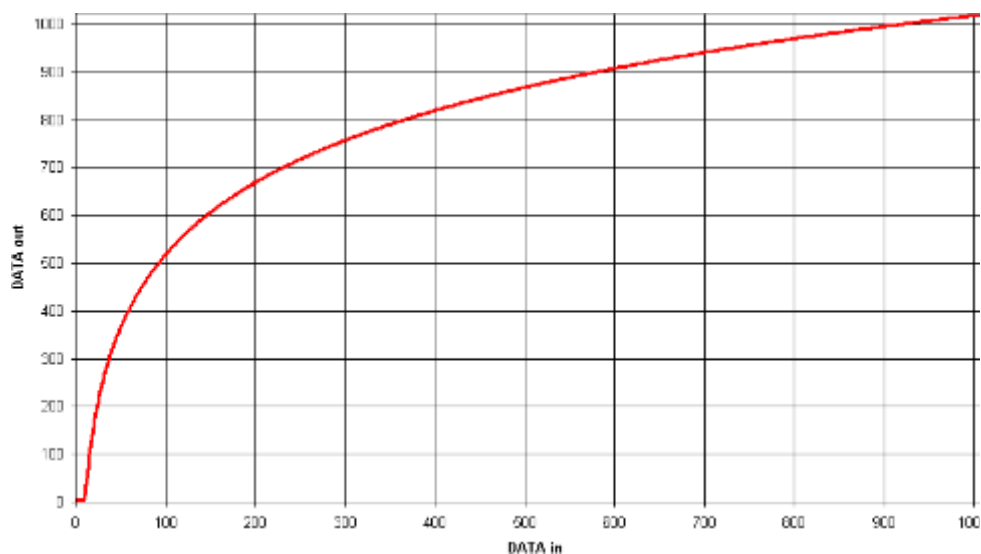
6.5.3.6 Characteristic

Selectable options are LIN, CPD, CRT or User LUT.

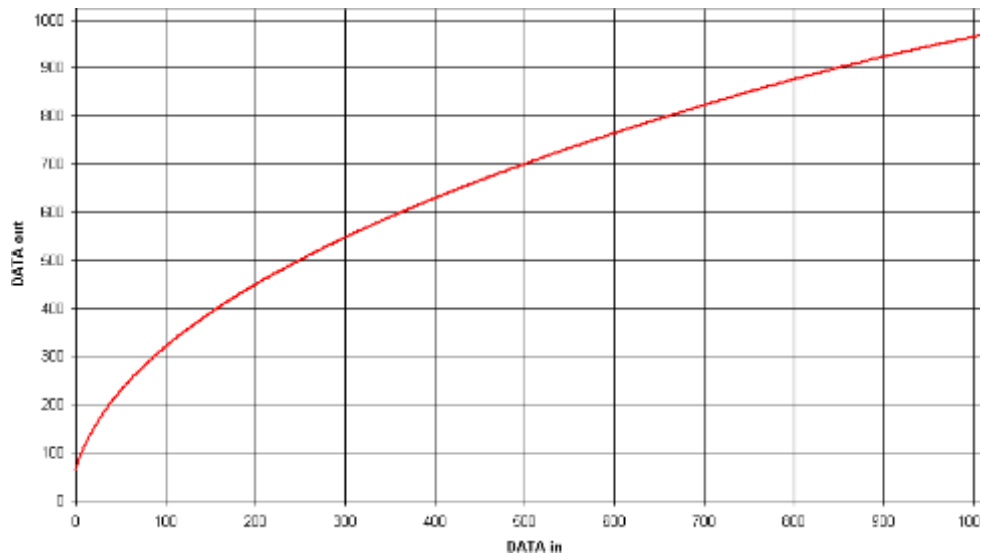
LIN The linear lookup table is equal to a unity lookup table. A use of a 10-bit linear lookup table should be omitted since the quantization does not fit to the characteristic curve of film material. If you like to scan the film material without any losses with a linear lookup table, you have to scan the film material in 16 bit linear. You should set the light level thus that your highlights are around 110% (59965 cv).



CPD The CPD (Cineon Printing Density) lookup is a logarithmic lookup table that originates from the Cineon DXR (Digital eXtended Range) color coding. The Cineon DXR coding allows to capture the density range of negative film material in a 10-bit file format. The reference white level (90% white card reflection) should be set to 685 and the reference black level (Dmin or 1% black card reflection) to 95. This leaves enough headroom to preserve the highlights and lowlights.



CRT The CRT lookup table is a logarithmic curve with a gamma of 0.45 which is the inverse of the CRT monitor gamma of 2.2. The black level using the 10-bit CRT lookup table should be set at a code value of 64 and the white level to code value 940. This gives some headroom for the highlights.



In case a User LUT is loaded the Positive/Negative and the Density Range adjustment will be deactivated.

6.5.3.7 Auto Film Stock Detection

When enabled, the film stock will be detected automatically by using the keycode. For details see Section 11.2.5 Auto FilmStock Detection.

6.5.3.8 Auto D-Min

The Auto D-Min function should be used to determine the best light setting for a given film type.

It measures the density of the film including a part of the perforation area for a single frame. The minimum density found is used to calculate a light level correction for each of the three color-channel separately, to set the light level to 100%.

In case of Print film it might happen, that the minimum density found does not represent the film D-Min due to the fact, that residual dyes are spreading into the perforation area. In this case it is recommended to use another frame which has a clean perforation area.

6.5.4 Size Page

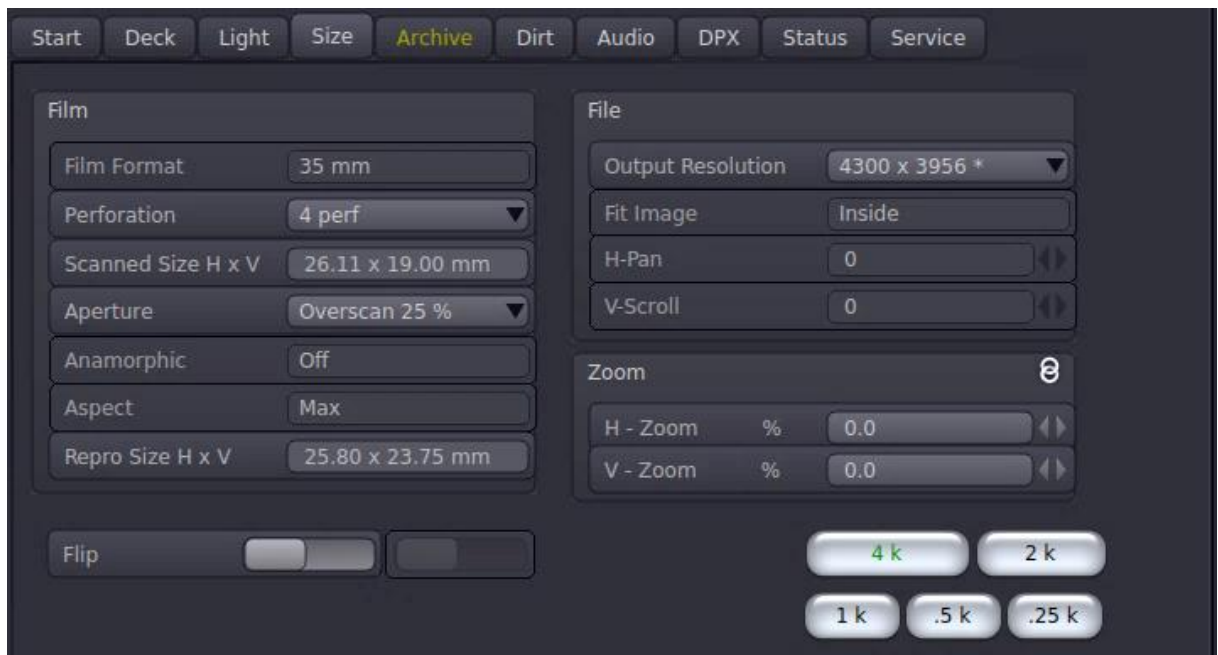


Figure 82: Scanner Size Page

6.5.4.1 Film

The left section serves to preset the film parameter:

- **Film Format**
The film format will be set automatically, depending on the inserted 16mm or 35mm LGA. In this example a 35 mm LGA is used. If a 16Plus LGA is installed, you will additionally be able to select 8mm.
- **Perforation**
This adjustor determines the number of perforation holes per film frame.
Selectable perforation with 35 mm film: 2, 3, 4, 8 perf
- **Scanned Size H x V**
Displays the scanned size in mm. With 35 mm film, the value depends on the number of perforation holes.
- **Aperture**
Selectable options:
 - **Overscan**
Overscan mode scans horizontally with the maximal aperture, including parts of the perforation. In addition, vertically the scan area will be extended by an adjustable part of the frame height. This means that parts of the previous and the following image can be captured in this mode. This allows to scan images with varying height. See Section 11.3.1 Scanner on page 295 to adjust the overscan-factor from 5%...25% of the image height. The maximal scanning speed is reduced here, and none of the scaling options are applicable.
 - **Max**
The film will be scanned with max Scanity aperture, including parts of perforation.

- **Full**
The film will be scanned with Full Aperture 24.92mm according SMPTE 59-1998.
- **Academy**
The film will be scanned with Academy Aperture 22mm according SMPTE 59-1998.
- **Prj**
Projection format, only selectable with 8mm Adapter installed.
- **Anamorphic**
The Anamorphic CinemaScope process is a lens that condenses the width of an image, squeezes the image during filming and then expands it during projection to create a wide screen effect. Sizing format enables cinemascope (anamorphic) reproduction of the film frame. Selectable options:
 - **Expansion**
 - **Off**
- **Aspect**
Selectable Aspects depend on the Aperture.
- **Repro Size H x V**
Displays the picture size in mm which will be subsequently processed in consideration of the selected film settings.

6.5.4.2 Flip

Selectable flip options:

- **H**
The picture is flipped horizontally. This is useful in case the film has been laced up in the wrong sense.
- **V**
The picture is flipped upside down. Apart from creative aspects, this function can be used in case the reel has been laced up at the end.

6.5.4.3 Zoom

You can zoom the content of the image in Directions H and V in the range of -30% to +30%. Since the Output Resolution remains unchanged, the image is either:

- Cropped, if you enlarge the content. You can specify the cropped area with panning or scrolling.
- Or gets blanked lines or pixels if you downsize the content.

A common use of this feature is to compensate a shrunken film. In this case you would increase the image to avoid disturbed lines or pixels at the borders.

6.5.4.4 File

This section specifies the resolution of the output files.

Output Resolution

Example for 4 Perf, Full Aperture, Aspect FA and 4k scanning:

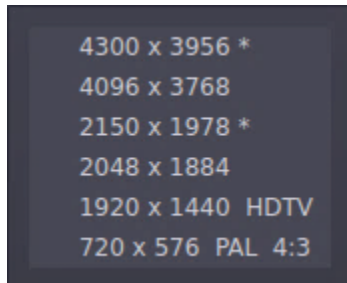


Figure 83: Output Resolution

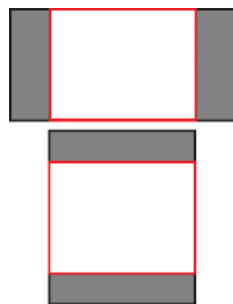
All resolutions marked with a * have native image content, they are not scaled. There is one SD and one HD-Format available. This format can be configured in Setup Page.

Note: The available options depend on the selected repro settings in the film section.

6.5.4.5 Fit Image

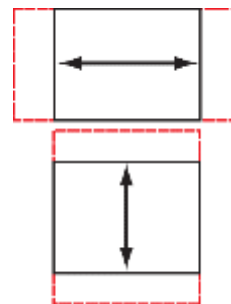
With a fixed file format, the output ratio may be different to the ratio of the selected repro format. But the repro ratio must be constant to deliver square pixels. There are 2 ways to adjust the zooming factor to solve this mismatch:

- **Fit Inside**
The output file includes the image completely in one dimension and delivers black pixels or lines in the other dimension.
- **Fit Outside**
The output file includes the image completely in one dimension and crops it in the other dimension. Select the area which is cropped with panning (horizontal) or scrolling (vertically).



Fit Inside

Output file has more pixel than the film.
Black pixel are added left/right or
top/bottom



Fit Outside

Output file has less pixels than the film.
Pixels are cropped left/right or
top/bottom. Output file can be panned
inside the film.

6.5.5 Archive Page

The Archive page offers different settings especially for archive material.

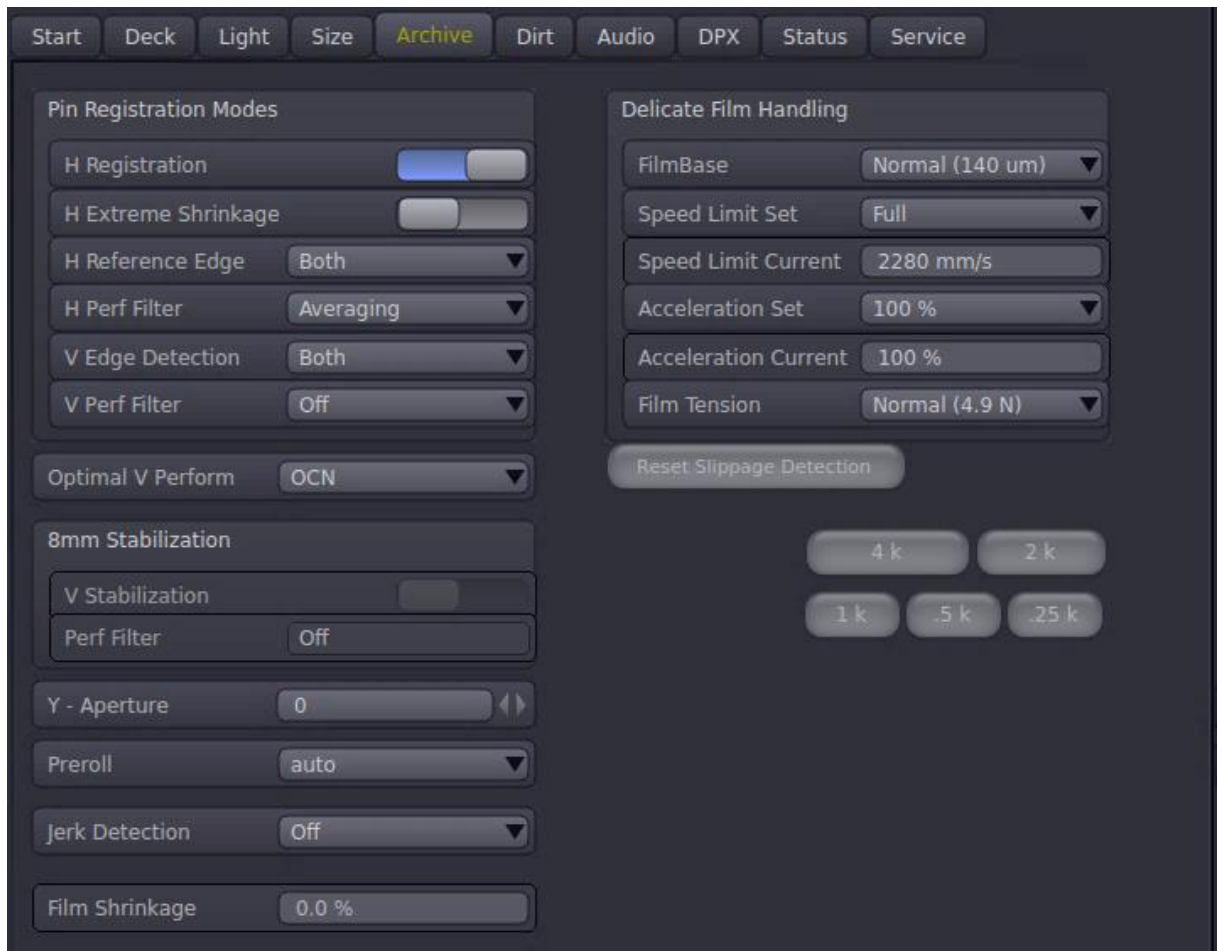


Figure 84: Scanner Archive Page

6.5.5.1 Pin Registration Modes

The SCANITY has an optical perf hole detection system for performing horizontal and vertical steadiness correction of the film images. Usually the best steadiness is achieved when both left and right (or upper and lower) perf edges are used for detection. In case of old film with damaged perf holes it may be advantageous to select single edge perf detection, using either the left or right edge (or either upper or lower edge) for deriving horizontal and vertical steadiness parameters.

- **H Registration**

Usually the perforation hole will be used to locate the image position for 35mm material. This switch allows to disable the use of the perforation hole for horizontal registration. In this case the film is strictly edge guided (like always for 16mm).

- **H Extreme Shrinkage**

Adapts the electronically H-Correction to heavily shrunken film.

- **H Reference Edge**

Select the desired reference edge Left / Right / Both.

- **H Registration Control**

Select the filter type depending on the used film material:

- **No Filter**

Suitable for new films, films in good condition, but also films with certain perf punch errors.

- **Averaging Filter**

Suitable for films with looser film tolerances and older films.

- **Median Filter**

Suitable for films with missing, damages and dirty perf holes.

- **V Reference Edge**

Select the desired reference edge Upper / Lower / Both.

- **V Registration Control**

Select the filter type, depending on the used film material.

- **No Filter**

Suitable for new films, films in perfect condition.

- **Averaging Filter**

Suitable for films with looser film tolerances and frequent splices.

6.5.5.2 Optimal V Perform

Allows to optimize the V behavior for best OCN or best Splice performance. In case OCN is selected any registration will be based on the reference/Mitchell hole for the scanned frame which results in best steadiness for OCN material. If Splice is selected the performance around splices is optimized especially for 35mm.

6.5.5.3 8mm Stabilization

This needs to be activated for 8mm Operation to increase image stability.

A separate LED indicates the quality of the detected perf holes used to stabilize the 8mm scan. This LED is located three times in the application on the Start-, Light- and Archive-Tab. The filmdeck needs to be in play to evaluate the available perf holes and indicate them accordingly.

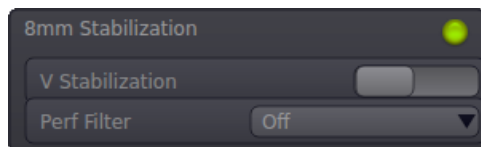


Figure 85: Good Stabilization LED

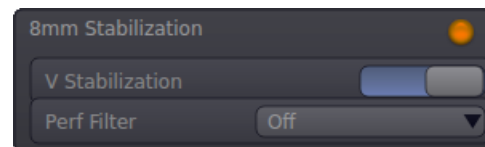


Figure 86: Bad Stabilization LED

6.5.5.4 Y-Aperture

The Aperture processing stage will compensate the system dependent frequency response. This stage is designed to also allow some creative operator adjustments. An Aperture setting of 0 means that the system will have a flat response.

Y-Aperture -50	No lift, pure camera signal
Y-Aperture 0	Compensation of small losses in optical path
Y-Aperture > 0	"Creative" lift above the regular compensation

6.5.5.5 Preroll

This selector allows you to adjust the Preroll duration in seconds. Shorter prerolling times allow to scan films with very few leader in front but include the risk to fail the transfer and possible losses in audio information.

6.5.5.6 Jerk Detection

Detects mechanical shocks and jerks during a scan. The detected areas will be marked with an anomaly marker and should be QC-ed afterwards.

6.5.5.7 Film Shrinkage

Note: In acetate film, permanent shrinkage is caused by the loss of residual solvents, and even the gradual elimination of strains introduced during manufacture. Note that though the reference to shrinkage is limited to acetate-based film (and is valid for both diacetate as well as triacetate base), nitrate film is also prone to shrinkage. The only film base where shrinkage is not considered to be a critical factor is polyester base film because it is less susceptible to moisture loss and contains no residual solvents.

Film Shrinkage

Displays the shrinkage of the currently scanned film material in percent as quality characteristic.

Note: Typical values are 0.8% or less for 16mm film and 1% or less for 35mm film.

6.5.5.8 Delicate Film Handling

These settings allow to reduce the maximum speed the acceleration and the film tension for critical material. Current speed limit and current acceleration are displayed in status fields. Additionally, the Film Base type can be selected.

Film Base

This setting specifies the film width and serves as a preset for other settings.

Available Selections are:

- **Normal (140 µm)**
All dependent settings are set to normal.
- **Ozaphan (70 µm)**
Speed Limit is set to 800 mm/s
Acceleration is set to 40%
Film Tension is set to „Reduced”

Caution: For critical and old material DFT recommend the following settings as a starting point.

Speed Limit Set:	200mm/s
Acceleration Set:	20%
Film Tension:	Low

Speed Limit and Acceleration can be set if machine is in Stop mode. Film Tension can only be set if the film deck is not in Stand By mode (no film tension).

Note: If the Film Tension is changed it will take some seconds before the system is ready for Stand By.

Note: If the tension is set to Low, the film roll will not be packed very tight. If such a roll will be used with Normal film tension afterwards slippage might occur!

Note: In case of reduced tension and acceleration, Transfer List execution might fail. Please reduce the Capture speed in this case.

The servo system also includes an automatic film slippage detection process. If a slippage is detected the servo system will automatically reduce the maximum speed and decrease the acceleration ramp.

If the user settings are overruled by this automatic process, the characters in the boxes will turn yellow to indicate this situation. Also, the Current fields will show the settings of the slippage automatically.

The operator can reset the automatic process via the Reset Slippage Detection button.

- **Speed Limit Set**

Depending on the conditions of the film material, the maximum spooling speed can be set stepwise to Full, 1200 mm/s, 800 mm/s, 400 mm/s, 200 mm/s

- **Acceleration Set**

Reduces the acceleration ramp of the servo system if required.
100%, 80%, 60%, 40%, 20%

- **Film Tension**

Allows to influence the tension. Available Settings are:
Increased, Normal, Reduced, Low

	Increased	Normal	Reduced	Low
16mm	3,2N	2,9N	2,4N	1,9N
35mm	5,2N	4,9N	4,0N	3,2N

- **Ozaphan Film**

Preset for this thin material

6.5.6 Dirt Page (Option IR Scratch/Dirt licensed)

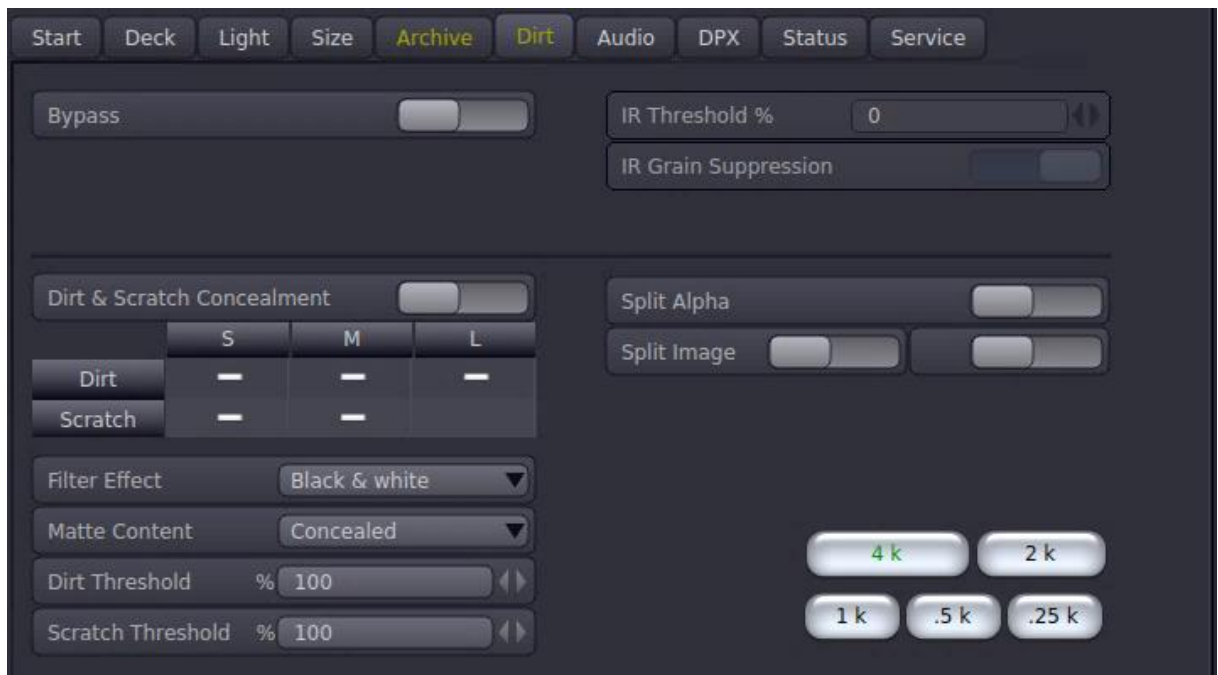


Figure 87: Scanner Dirt Page

The Dirt page controls the processing stage for the Infrared (IR) camera signal.

Note: This page can only be used if the IR Scratch/Dirt option is installed.

The signal of the IR camera contains the information about aberrations on the film surface, such as dirt particles and scratches and will generate a dirt matte.

With an installed IR Scratch/Dirt option, this dirt matte will be packet in the alpha channel.

For some defect matte formats, the Image Preview Window allows to display the image content of the alpha channel.

In case the Dirt/Scratch Concealment option is installed, an additional processing can be used to eliminate dirt and scratches on the fly and to influence the output dirt matte.

6.5.6.1 Bypass

Bypass will disable the Dirt and Scratch Processing. If Bypass is enabled, the output dirt matte will reflect the IR signal of the camera. Since SCANITY V2.1 version, the level will be adapted automatically. The default target white level for the automatic adaption is very close to absolute white.

IR Gain

Allows to change the target white level to a certain extend.

Grain Suppression

Will add a curve to reduce grain or ghost image content.

6.5.6.2 Dirt and Scratch Processing (*Option Dirt/Scratch Concealment required*)

The caption Dirt turns yellow in case any dirt and scratch processing is performed. Dirt and scratch processing consist of two parts:

- Dirt and scratch detection and classification
- IR and scratch concealment

Depending on the settings of defect type and size (see below) in the matrix, the defect image areas are replaced by the corresponding areas of the clean median-filtered image.

Correction Matrix

This signal of the IR camera is processed and classified into four categories regarding dirt size and scratch width.

The four categories are:

- **XS:** Very small dirt or very fine scratches. They are already concealed by the diffuse lighting system of the SCANITY. Nevertheless, they are present in the dirt matte.
- **S:** Small dirt or fine scratches.
- **M:** Medium dirt or scratches
- **L:** Large dirt or scratches

The matrix allows to select some different modes for these categories of defects:

- **Show XS / XS** will overlay the (already concealed) very small defects to the RGB image. Defects will turn yellow
- **Dirt / S and Dirt / M** will enable the concealment for this category of dirt
- **Scratch / S** will enable the concealment for this category of dirt. Dirt or scratches classified as large, cannot be concealed but they can be fed into the alpha channel (dirt matte) for subsequent external processing

Filter Effect

Filtering affects also the grain structure / image texture.

Filter Effect adjustment helps:

As dirt and scratches in case of Negative conversion appears as white defects, the Filter Effect should be set to White in such a case in order to preserve the darker part of the grain structure/ image texture. In Print/Positive mode, dirt and scratches appear as black defects, therefore the Filter Effect should be set to Black in order to preserve the brighter part of the grain structure / image texture.

Matte Content

Detected defects are always displayed in black, no matter which Filter Effect is selected or whether the machine works in print/positive or negative mode.

- **Concealed**
Only the repaired defects (dirt and scratches) are displayed.
- **Non Concealed**
Only those defects are displayed that exceed concealment.
- **Original IR**
Displays the IR camera signal (already black and white level optimized).

Dirt Threshold

Adjusts the sensitivity of the dirt detection.

Scratch Threshold

Adjusts the sensitivity of the scratch detection.

Split Alpha

In position on, the alpha channel is displayed (accordingly to the matte content settings) in the lower half of the image.

Split Image

- **H (Horizontal)**
Left = original image, Right = concealed image
- **V (Vertical)**
Upper = original image, Lower = concealed image
- **H and V (Both)**
Upper left quarter = original image
Remaining three-quarter = concealed image

Show Global Concealment

Shows the entire image according to the filter effect settings.

6.5.7 Audio Page



Figure 88: Scanner Audio Page

6.5.7.1 Input

Adjust the recorded audio level. If Gang (ring symbol) is deactivated, both channels can be adjusted separately.

6.5.7.2 Monitor

Adjust the loudspeaker level. If Gang (ring symbol) is deactivated, both channels can be adjusted separately.

6.5.7.3 Ingest Audio

- **Audio Mode**
 - **Stereo**
35 mm only, both audio tracks are processed.
 - **Mono**
35mm: both audio tracks are mixed together.
 - **Mono left**
35mm only, only the left audio track is used.
 - **Mono right**
35mm only, only the right audio track is used.
- **Audio Head**
Select the desired audio head (e.d. Optical 35 mm).
- **Max. Monitoring Level**
When enabled, sets the Monitoring output to the maximal level.
- **Analog Gain + 6dB**
The signal will be amplified in the analog domain to help in case of low contrast audio tracks.

6.5.7.4 Bypass Audio Delay

If activated, the internal audio delay line will be bypassed to get a direct feedback for optimizing the lateral position and azimuth of the new adjustable audio heads.

6.5.8 DPX Page

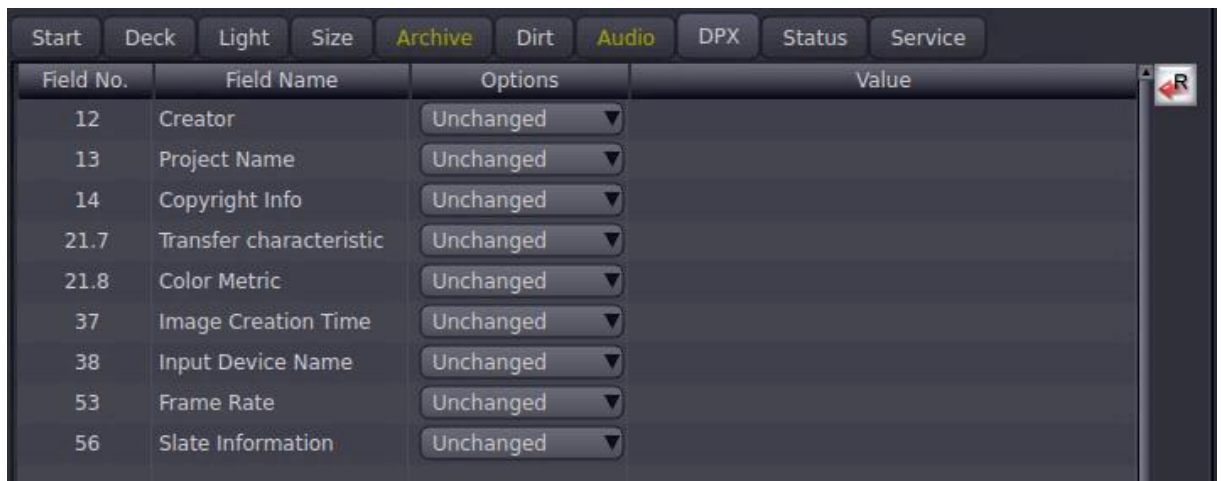


Figure 89: Scanner DPX Page

Here selected fields of the DPX-Header can be modified.
This are available modification Options:

- **Unchanged**
Do nothing, leave header as it is.
- **Delete**
Field is blank in the header.
- **Modify**
Enter a new value in column „Value”.
- **Copy from file**
Use contents of a textfile. Enter its name in column “Value”.
- **Copy from transfer list**
Do not use.
- **Copy from Clip name**
Do not use.
- **Copy from header**
Do not use.
- **Copy from scene take**
Do not use.
- **Copy from system**
Do not use.

Note: Do not modify the field “Format”

Pressing the Reset button sets **all** values to default.

6.6 File Browser

The SCANITY application has a source and a target browser. With the device selection areas on their left sides you can select the source device and the target device.

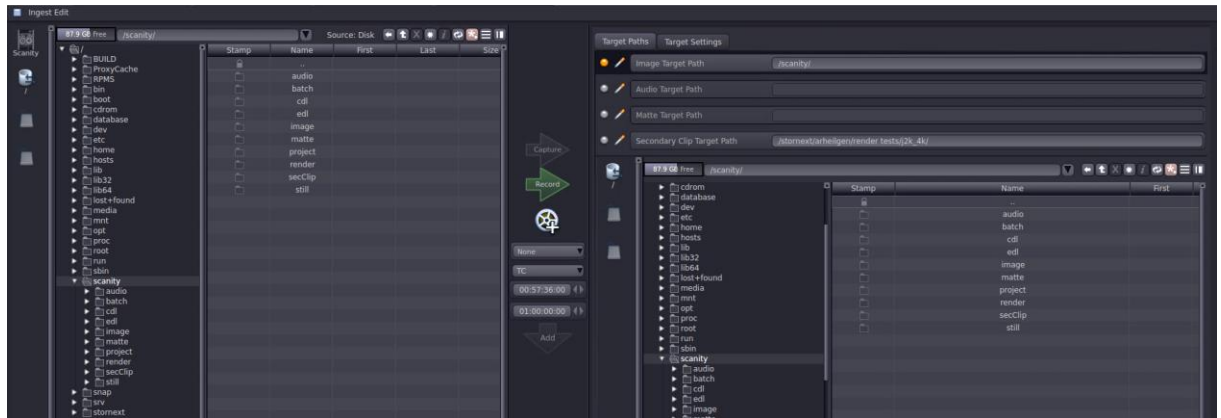


Figure 90: Source and Target Browser

6.6.1 Browser Context Menu

There is a right mouse context menu in the browsers, which provides the following options:

- **Back**
Moves on step back in the browser history
- **Up one Directory**
Moves up one directory
- **New Folder**
Creates a new folder
- **Renumber**
The Renumber Clip dialog comes up which allows to:
 - Renumber an entire clip or just a range
 - Change the frame file name (prefix, suffix, padding) as part of the renumber operation
- **Rename**
Allows to rename a file
- **Delete**
This window comes up and allows to delete the complete clip or only some selectable frames of the clip

- **Information**
Opens a window which displays image information in several tabs:
 - **Info**
Provides general data
 - **Settings**
Displays all scanner data
 - **DPX Header**
Provides information from the DPX header of each single image
- **Refresh**
Updates the view of the browser
- **Filter**
Allows to filter the entries of the browser. For this, a new window comes up where a filter mask can be entered
- **Association**
Allows to create or remove an association of one or more audio clips to one image clip. The same works the other way around (an association of an image clip to an audio clip)
- **Add to Database**
Will add the clip to the current material list (Audio and Image) with all slates and markers to the database. Thereby the original path of the audio/image is set as a link
- **Export to ALE** (Target Browser only)
An Export ALE dialog is opened and finally a ALE file is created
- **Detect Keycode Reel Jumps**
This function analyzes the recorded images for keycode jumps and adds an reel change marker automatically to the appropriate position
- **Detect Scene Changes**
This function detects a scene change marker is added automatically to the appropriate position. Scene Change detection is done by calling the related dialog Detect Scene Changes in the context menu of the source and target browsers. A Scene Change marker is added automatically to the appropriate position. The Scene change detection is automatically performed as a background process in the BG Tasks Page
- **Overwrite Properties**
This function allows to change sample rate, frame rate and timecode in an audio file.
- **Append / Assemble / Merge**
Combine two or more audio tracks to one new track
- **Samplerate Conversion**
Convert one or more audio files to different sample rates
- **Recall Scanner Settings** (Target Browser only)
Recalls the Scanner settings stored in the clip and applies them to the scanner

Note: Do not rename Productions, Episodes, Shoot days and Lab rolls in the File Browser! This will corrupt data structures and might destroy metadata of the production.

6.6.2 File Browser Buttons



Figure 91: File Browser Button Set

-  Back
-  Up one directory
-  Delete
-  New folder
-  Show Clip information
-  Refresh
-  Filter Contents
-  List/Icon view
-  Tree View On/Off

These buttons are available in the Source browser and Target browser (file view).

6.6.3 Source Browser

The Source Browser is used to select the source where the video files are from. Possible source devices SCANITY or the local storage.

The left side of the Source Browser shows all connected and configured devices and storages.

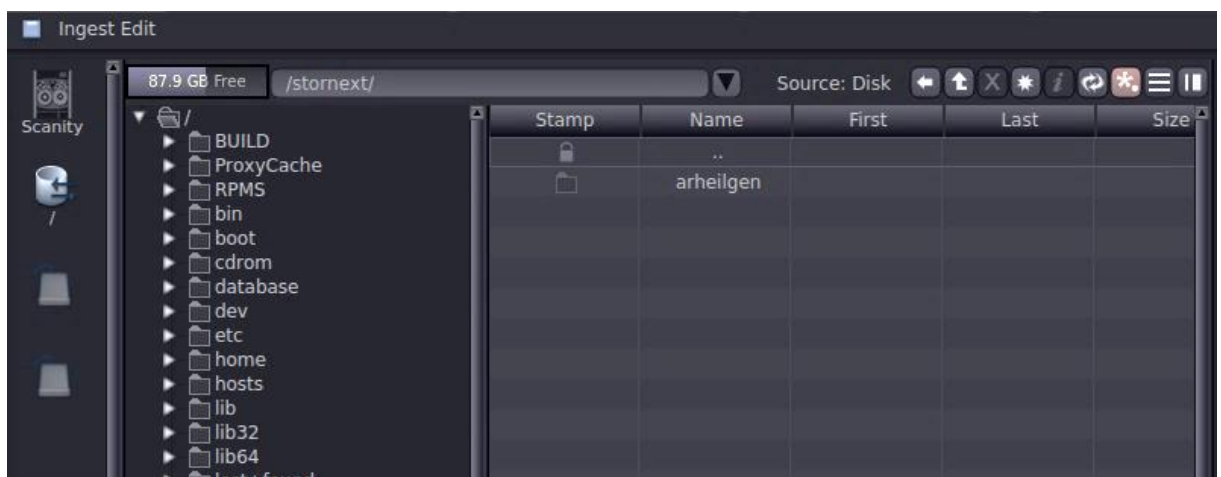


Figure 92: Source Browser

6.6.4 Target Browser

The Target Browser is used to select the target where recorded files should be stored. This can be:

- Image files
- Audio files
- Dirt Matte files, if a separate Dirt matte is selected in the Production
- Secondary Clip files

6.6.4.1 Target Paths

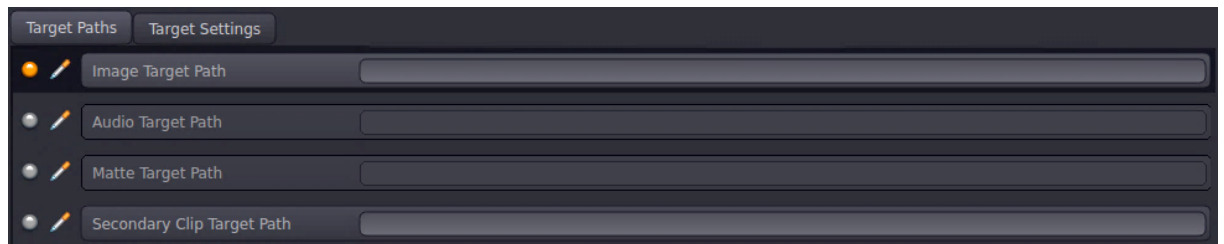


Figure 93: Target Paths

Image / Audio / Matte / Secondary Clip Target Paths

This specifies the target paths of the recorded files. The Edit/Lock function allows to lock the current path. If the path editing is unlocked, the selected path can be changed or will follow the target browser navigation.

Caution: The current settings are valid for a manual recording or capturing. Transfer list elements have their own settings!

6.6.4.2 Target Settings

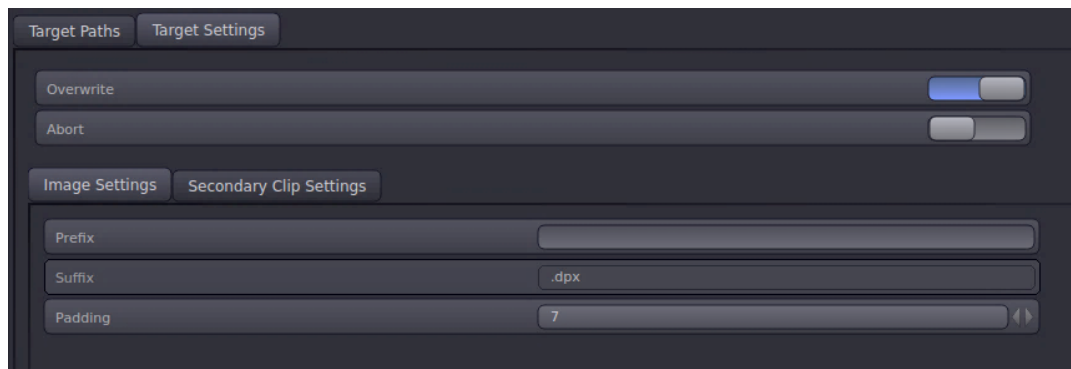


Figure 94: Target Settings

Image Settings

- **Prefix / Suffix / Padding**
This specifies the filename of the recorded files.

Secondary Clip Settings

This allows generating a second output in parallel during recording

Note: Not all formats will work correct for any scanning speed.
No Audio will be included.
No resizing will happen, only original scanning resolution.

Audio Settings

- **Prefix**
Specifies the filename of the recorded files.

6.6.4.3 ReelView and FileView Mode

The View Mode of the Target Browser can be selected in order to work in different workflows.

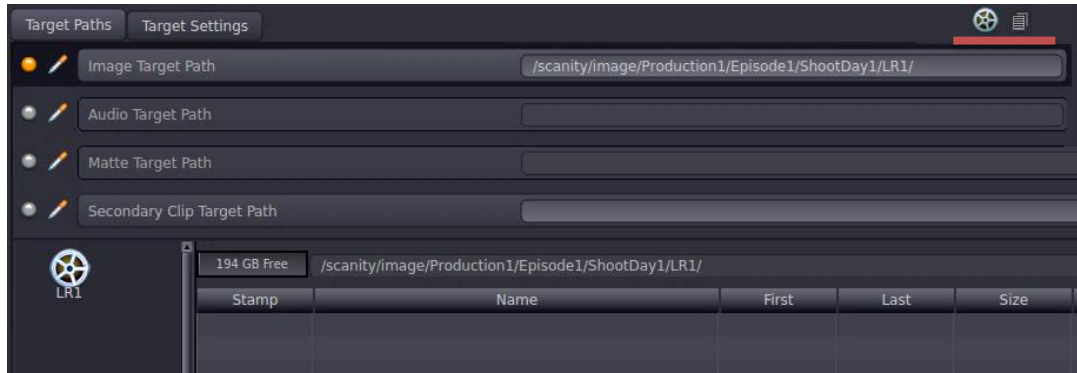


Figure 95: Target Browser in Reel View; selection buttons marked

The target browser in Reel View contains also a right mouse context menu after clicking lab roll in the browser.

This context menu contains the following options:

- **Rename**
Renames the roll
- **Delete**
Deletes the roll with its content
- **Refresh**
Updates the view of the rolls
- **Move to Shoot Day ...**
Allows to move the roll to another shoot day
- **Export to ALE**
An Export ALE dialog is opened and finally an ALE file is created

6.6.5 Copying and Moving Clips and Folders

The Source and Target Browsers allows to copy and move clips and folders between the browsers.

- **Moving clips or folders**
Drag one (or more) clip/folder from one browser and drop it into the other browser, in the target directory in the Tree View.
- **Copy clips or folders**
First press the Ctrl key, then drag one (or more) clip/folder from one browser and drop it into the other browser, in the target directory in the Tree View.

6.6.6 Export Reel to ALE List

ALE implies for Avid Log Exchange and is mainly used for Avid® editing systems. An ALE file is an extended EDL and contains information about timecode, keycode, metadata like scene and take and color information.

In order to export the scanned material in an ALE format right click on the reel. The reel should be selected, and it should contain one or several scans.

An Export ALE dialog is opened and finally a ALE file is created.

The exported ALE file is readable with a standard spreadsheet application. To Import the ALE file into a spreadsheet application use TABs to delimit the columns.

The ALE list contains three parts. The heading of the ALE, the headings of the column and the columns with the data itself.

The ALEs heading contains some general information of the ALE:

FIELD_DELIM	Field delimitation of this ALE
VIDEO_FORMAT	Video format
FILM_FORMAT	Film format
AUDIO_FORMAT	Audio sample frequency
TAPE	Name of the tape
FPS	Film speed for transfer

6.6.6.1 Export to ALE Dialog

This dialog allows the selection of a directory in which the ALE file should be stored. The dialog also allows to set some export options that are described in the following:

Video Format

Defines the video format for export.

The selectable options are PAL, NTSC, 720, 1080, 2048.

ALE fps

Select the frame rate for export.

The selectable options are 23.98, 24, 25, 29.97 and 30.

Export Anomaly Markers

Will export Anomaly Markers to the ALE file. The Anomaly Markers are listed in an extra column at the left end of the ALE-List.

Export Reel Markers

The ALE list export interprets each Reel Marker as the start point of a scan.

Therefore, each Reel Marker will cause a new line in the ALE list.

Export Scene Markers

The ALE list export interprets each Scene Marker also as the start point of a scan. Therefore, each Scene Marker will cause a new line in the ALE list.

6.6.7 Adding Ingest List Entries

The following control elements are located

- between Source and Target Browser
- and in the tab Target Settings

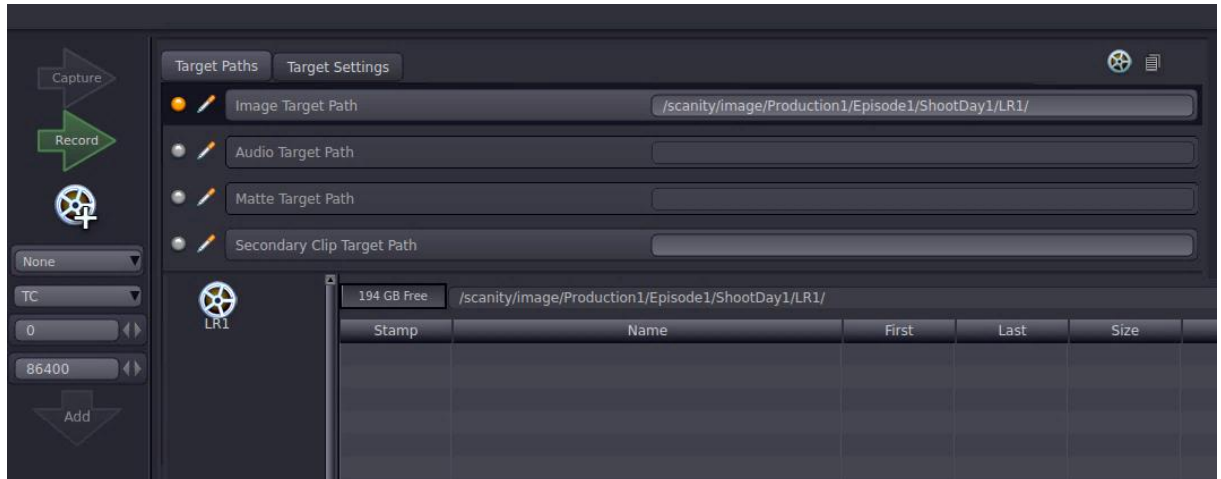


Figure 96: Target Settings and adding options on the left

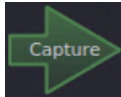
- **TC / KC - Switch**
This specifies if a timecode or keycode list entry is created
- **First / Last**
This fields displays the bounds of a clip to be transferred. The In Point- and Out Point-Marker.
- **Overwrite**
The Overwrite button specifies whether existing frames encountered during the transfer of an item will be overwritten.
- **Abort**
The Abort button specifies whether the entire transfer session will be halted if an error occurs while trying to transfer an item.
- **Prefix / Suffix / Padding**
Add a pre- or suffix to the filename.
Padding is the number of digits of the filename.
- **BatchSetting**
This specifies the BatchSetting which is applied after the Ingest is done. None (default) means no Batch Processing.
- **Add**
Use the Add button below the Target Browser to add material to the Ingest List.

6.6.8 Recording Images

Between the Source and Target Browser are buttons for starting the ingest process of the Image data.

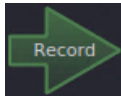
- **Capture**

Pressing the Capture button will start a recording exactly from the current position onwards. The machine will automatically execute a preroll sequence before recording. Capture button is only enabled in STOP.



- **Record**

Pressing the recording button will record from current position onwards. Record button is only enabled in PLAY.



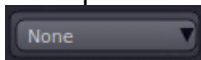
- **Add Lab Roll Button**

It is used to add a new lab roll (in Labroll View) or a new directory (in File View) to the Target Browser.



- **BatchSetting**

This specifies the BatchSetting which is applied after the Ingest is done.



6.6.9 Renumbering Recorded Clips

The renumbering function is located in the browser context menu.



Figure 97: Renumber Clip

The Renumber Clip dialog comes up which allows to:

- Renumber an entire clip or just a range.
- Change the frame file name (prefix, suffix, padding) as part of the renumber operation. Currently only DPX files may be renumbered!
- Section **Modification Range**
Specify the frames you want to change. The default is Entire Clip, but you can also specify frames inside the Clip.
- Sections **New Clip Name** and **Renumber Settings**
Specify what you want to do.
- Section **Update Header**
Mark the checkboxes if you also want to update the dpx-Header.

Press OK to perform the operation.

Detailed Description of all settings:

- **Pick Range**
Select if you want to renumber the entire Clip (Labroll) or only a section of a source clip.
- **First / Last**
If it is only desired to renumber a range of a source clip, define the first and last frame (inclusive) here.
- **Clip FCM (Frame Count Mode)**
Shows the framecount mode of the source clip (24/25 etc).
- **Set new**
Set a new number for either the first or last frame.
However, the whole range selected in Pick Range and First/Last will be renumbered.
- **New First / New Last**
Define the new frame start/end number that the clip is to become.
- **New FCM**
Allows to set a new FCM for the clip.
- **Prefix / Suffix / Padding**
Add a pre- or suffix to the filename.
Padding is the number of digits of the filename.
- **Update Timeline**
Allows to change the SMPTE timecode in the rename (relates to FCM setting), if checked, Field 58 in DPX header.
- **Update Frame Rate**
Allows to change the frame rate field in DPX header if checked, field 53 in DPX header.
- **Update Filename**
Allows to change the filename field in DPX header if checked, field 9 of DPX header.

The Renumber feature fixes problems (Discrepancies) in the relating fields of the header and the actual filenames, as per SMPTE DPX Specs.

If used incorrectly, it is possible to create NON-standard Files that will cause problems in the workflow.

If none of the Update Checkboxes are enabled, the renumber method is a simple move of the old filename to the new filename.

As many applications will work with the DPX header information, it is optional to keep the relation of the DPX header information consistent with the actual filename and the header information. Recommended practice is to have all checkboxes ON, when renumbering files.

A discrepancy in the filename/-number and the SMPTE timecode is interpreted as a non-standard situation and will be indicated by a GREY display of the SRC timecode in the viewer overlay information (option view TC/KC of viewer).

Any DFT device producing any file output, will keep the header information consistent with the filename. So, the timecode will break down to the correct frame number in both the DPX header entry and the filename.

The combination of a timecode with the known FCM will always allow any application to break down any timecode into a unique frame number.

6.7 Metadata Window

The metadata window allows the user to enter metadata values such as take or scene numbers. It also shows information about the take and anomaly markers.

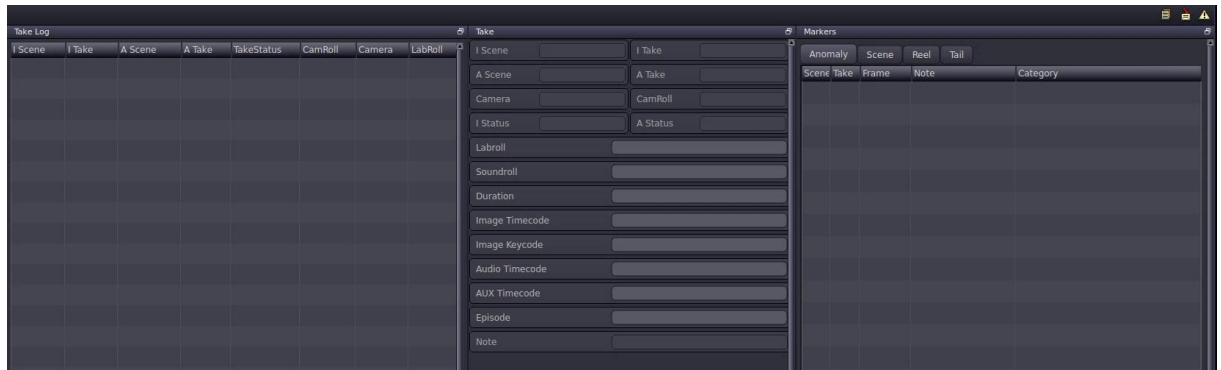


Figure 98: Metadata Window

With the small icons on the upper left corner the subareas can be switched on or off in order to reduce the visible windows.



6.7.1 Take Log

The Take Log section in the metadata window displays all take markers with the corresponding take and scene number and their status.

6.7.2 Take

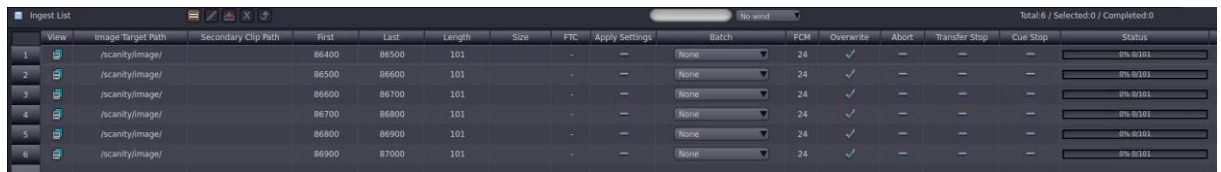
The Take section in the metadata window allows the user to edit values of the currently selected Take Marker.

When the Take name ends with a number, the next inserted take will get the same name with the number incremented. The Parameter Enable Data Entry After Creating a Take Marker simplifies editing of a newly created Marker.

6.7.3 Markers

The Markers section in the metadata window displays all created anomaly take markers with information about scene, take, frame, type and special note(s) for the anomaly take marker. Anomaly take markers can only be created manually. The information about the anomaly marker can be entered using the take section in the metadata window. The Markers section in the metadata window also displays all generated Scene, Reel and Tail markers.

6.8 Transfer List



View	Image Target Path	Secondary Clip Path	First	Last	Length	Size	FTC	Apply Settings	Batch	FCM	Overwrite	Abort	Transfer Stop	Cue Stop	Status
1	/scanity/image/		86400	86500	101		-	-	None	24	✓	-	-	-	0% 0/101
2	/scanity/image/		86500	86600	101		-	-	None	24	✓	-	-	-	0% 0/101
3	/scanity/image/		86600	86700	101		-	-	None	24	✓	-	-	-	0% 0/101
4	/scanity/image/		86700	86800	101		-	-	None	24	✓	-	-	-	0% 0/101
5	/scanity/image/		86800	86900	101		-	-	None	24	✓	-	-	-	0% 0/101
6	/scanity/image/		86900	87000	101		-	-	None	24	✓	-	-	-	0% 0/101

Figure 99: Transfer List Panel

In the Transfer List panel all jobs are listed where images can be transferred from the Scanner to a target device. A Transfer Item is one row in the transfer List.

6.8.1 Adding Transfer Items

The entries in the list panel can be made manually by using drag and drop directly from the target browser to the list window. This will add the complete clip range and the actual target path as a transfer item.

- The scanner settings of the source clip are restored
- Using the Add button a Transfer Item is inserted which extends from the First to Last frame numbers
- By loading a list stored from a previous session
- By importing an EDL or a keycode list

The table contains the following columns:

- **View**
An icon shows if the transfer item was created in the Reel View or File View of the browser.
- **Image Target Path**
Displays the directory where the files are stored in.
- **Audio Target Path**
Displays the directory where the audio files are stored in. This column is only visible with the Audio Option installed.
- **First / Last / Length / Size**
Shows the first / last frame of a transfer item, as well as its length and size. Display may be frame number or timecode, depending on the switch in the setup. With a keycode list, the Length field always displays frame numbers.
- **FTC**
Shows the value where the first selected frame of a keycode list will be set to. The FTC value will be imported with the keycode list.
- **Apply Settings**
If checked, the Scanner Settings stored in the transfer item are applied.
- **Batch**
Select the Batch Setting here, where all scanned items are processed with. None means no batch processing.
- **FCM**
Frame count mode of the Transfer Item. This can be 24, 25 or 30 fps.

- **Overwrite**
The overwrite flag specifies if existing frames will be overwritten. The default value is disabled.
- **Abort**
The abort flag specifies if the entire transfer session will be halted if an error occurs while trying to transfer an item. The default value is disabled.
- **Transfer Stop**
If this flag is enabled, the transfer will stop after this item is transferred.
- **Cue Stop**
If this flag is enabled, the transfer will stop after this item is cued.
- **Status**
Displays the actual status of the transfer.
 - **Not executed or during execution**
Displays the percentage of execution, frames executed, and the total number of frames.
 - **Complete**
Transfer completed successfully.
 - **Failed**
Transfer aborted or failed. See the Log panel under the List panel for a detailed message.
- **Cam Roll / Lab Roll**
These entries are read from a KCL or can be entered directly.
- **Note**
This entry is read from a KCL or can be entered directly.
- **Additional Path**
This parameter is read from a KCL. It specifies a path which is appended to the Target Path to specify another directory.
- **Comment Line**
This parameter is read from a KCL. It specifies an additional comment.

Note: To modify multiple rows concurrently, select all rows and click on a selected item in the concerning column.

6.8.2 Edit Transfer List

The Transfer List can be edited using the buttons or the context menu.

- To select a single item, click it.
- To select multiple items, press the Shift or Control key while clicking the left mouse button, or use the Select All button to select all items in the list.

A double click on a List Item opens the editor.

Overview of the control buttons:

- **Select All**
Selects all transfer items in the Transfer list

- **Edit**
Opens the Edit dialog field to edit a transfer item

- **Merge**
Merges items that are close together on the source device to one transfer item


Delete

Deletes the selected transfer item(s)



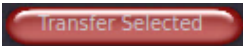
Make Current

Updates the view of the Source and Target browsers to the source and target of the current item



Transfer Selected

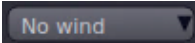
Transfers all selected transfer items from the transfer list



Wind Mode

This allows to automatically rewind the film roll after a successfully finished transfer. Wind modes are:

- No Wind
- Wind to head
- Wind to tail
- Wind to closest



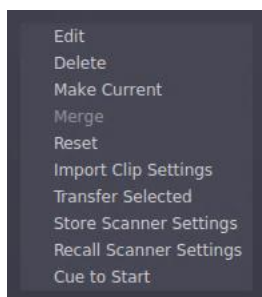


Figure 100: Transfer List Context Menu

- **Reset**
Resets the status of the selected items, so they can be executed again. Use the overwrite flag when the same frames are scanned again to avoid aborts.
- **Import Clip Settings**
Copy some scan settings to a pull list entry.
 - Select a scan where the settings are copied from.
 - Select some pull list entries as target.
 - Press Import Clip Settings from the context menu
- **Store Scanner Settings**
Stores all current Scanner settings in the Transfer Item.
- **Recall Scanner Settings**
Recalls the Scanner settings stored in the Transfer Item and applies them to the scanner. So you can check if the stored Settings are correct.
- **Cue To Start**
Spool the film to the first frame of the Transfer Item. In a keycode list this is only possible when the frame was already scanned, so the corresponding frame count is known.

6.8.3 Editing Single Transfer Item

After selecting a single transfer item and pressing the Edit button, the following menu appears, which is divided into several tabs:

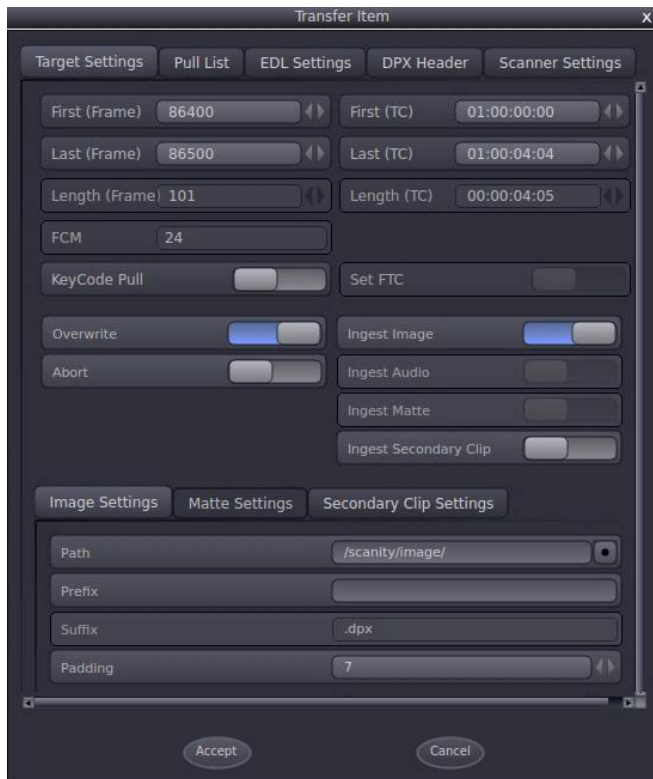


Figure 101: Single Item Edit Menu

6.8.3.1 Target Settings

- **First / Last**
First and last frame of a clip to be transferred
- **FTC / Set FTC**
In a keycode pull list the first frame of a transfer item can be set to the specified value. FTC is editable only if Set FTC is checked
- **FCM / First / Length**
This is the framecount mode of the List Item. It can be 24 / 25 or 30 fps. If it is different to the SCANITY FCM
- **First / Length**
Used when converting the FCM of the list item to the SCANITY value
 - **Keep Timecode value:** change Frame number
 - **Keep Frame number:** change timecode
- **Keycode Pull**
If checked, the images to be transferred are specified by their keycodes. If unchecked, the images to be transferred are specified by their timecode (or frame number). The concerning parameters are enabled/disabled dependent on this value.

6.8.3.2 Transfer Flags

- **Overwrite**
Specifies if existing frames will be overwritten. The default value is False.
- **Abort**
Specifies if the entire transfer session will be halted if an error occurs while trying to transfer an item. The default value is false.
- **Ingest Image / Ingest Audio / Ingest Matte / Ingest Secondary Clip**
Enable the checkbox to ingest the corresponding content. If all checkboxes are unmarked, nothing will be ingested.

6.8.3.3 Image Settings

- **Image Reel / Path**
Destination path where the transferred images are stored. This is a
 - Reel if the item is created in Reel View.
 - Directory if the item is created in File View.
- **Prefix/Suffix/Padding**
Specify the filenames of the images, see below.

Note: If numbers are used in prefix or suffix, it is required to use a non-numeric character next to the frame numbers. Otherwise prefix and suffix will get mixed up with the frame numbers.

cin	0001337	.dpx
Prefix	Padding	Suffix

6.8.3.4 Matte Settings

- **Path**
Specifies the Path and of the generated Matte files.

6.8.3.5 Secondary Clip Settings

For a detailed description of the Secondary Clip Setting options, refer to Section 7.3.7 Output.

6.8.3.6 Audio Settings

- **Path**
This specifies the Path and filename of the generated Audio-Files.
- **Prefix**
This specifies the prefix of the filename of scanned Audio Files.
After making changes, click the Accept button to save the changes.
To discard changes, click the Cancel button.

6.8.3.7 Pull List

Keycode Pull List

- **First KC / Last KC / Number**
First/Last keycode and number of frames to be scanned. Last keycode is not editable.
- **Perf**
Shows the film perforation of the transfer item. The following values are possible: 1 Perf (16mm), 2, 3, 4 and 8 Perf (all 35mm).

Pull List Stop Flags

- **Stop After Transfer**
Stops the transfer after the transfer item is performed.
- **Stop After Cue**
Stops the transfer before the transfer item will be performed. This is helpful to make some changes, for example like brightness changes.

6.8.3.8 EDL Settings

- **EDL File / Number**
If the list was imported from an EDL File, its Filename and -number are displayed here.

6.8.3.9 DPX Header

Please refer to Chapter 6.5.8 DPX Page for further information on the DPX Header.

6.8.3.10 Scanner Settings

Please refer to Chapter 6.5.8 DPX Page for further information on the DPX Header.

6.8.4 Editing Multiple Transfer Items

After selecting multiple transfer items and pressing the Edit button, the following menu appears, which is divided into several tabs. See Section 6.8.3 Editing Single Transfer Item for more information.

6.8.4.1 Basic

Source Settings

- **First +/- / Last +/-**
Modifies the first and last frame entry. Positive numbers extend the frame range, negative numbers shrink the range.

Transfer Flags

- **Overwrite**
Specifies if existing frames will be overwritten. The default value is False.
- **Abort**
Specifies if the entire transfer session will be halted if an error occurs while trying to transfer an item. The default value is false.

Target Image Settings

- **Reel**
In reel view this is the destination reel where the transferred images are stored.
- **Prepend Path / Replace in Path**
In file view the destination path can be modified.
- **Prefix/Suffix/Padding**
Specify the filenames of the images, see chapter 6.8.3.3

Target Audio Settings

- **Prefix**
This specifies the prefix of the filename of scanned Audio Files.

6.8.5 Merging Items

Items that are close together on the source device can be merged into one transfer item. Select the clips that shall be merged, press the Merge button and select the maximum gap between them. This is used to decide if the merge can be performed.

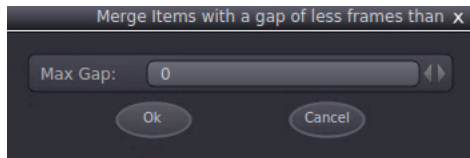


Figure 102: Select Handle Length

After you press the OK button, the requested items are merged.

6.8.6 Load Transfer List

To load a transfer list, move the mouse cursor to the lowermost point of the GUI and select Load Transfer List from the appearing Main Popup Menu.

The following dialog opens:

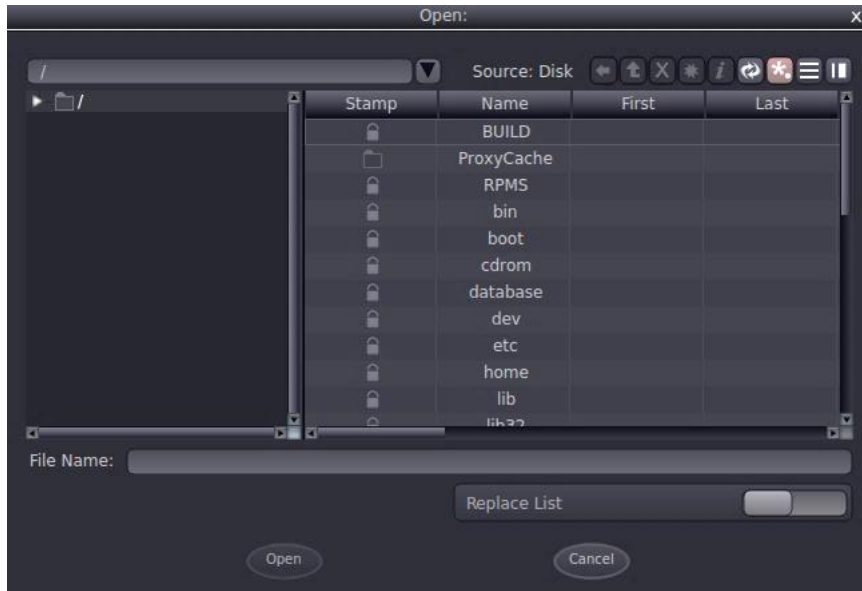


Figure 103: Load Transfer List

Browse to the folder where the required transfer list is stored and select it. Then press the Open button to load the list.

If the Replace List button is activated, the existing Transfer List in the List panel will be replaced with the new loaded list.

If the button is inactivated, the new loaded transfer list will be appended to the existing transfer list.

After loading the list will appear in the List panel. It is possible to edit or change items in the list and to store it again. The transfer List status will be automatically restored after loading a transfer list.

6.8.7 Save Transfer List / Save Transfer List As

To save a transfer list select Save Transfer List / Save Transfer List as from the Main Popup Menu.

The transfer list will be saved in a sub folder of the current project, named lists. The name of the saved transfer list is comprised of the Project Name plus the suffix .btl.

The Option Save Transfer List As from the menu above allows you to save the transfer list with a specific name.

6.8.8 Import / Export Transfer Lists

An EDL is an Edit Decision List which includes timecode edit information for image material. An EDL is used to easily save and load edited timelines.

6.8.8.1 Import

To open the EDL import dialog, move the cursor to the lower bottom line and click on Import -> Import EDL in the appearing main popup menu or use the hotkey Ctrl+Alt+I.

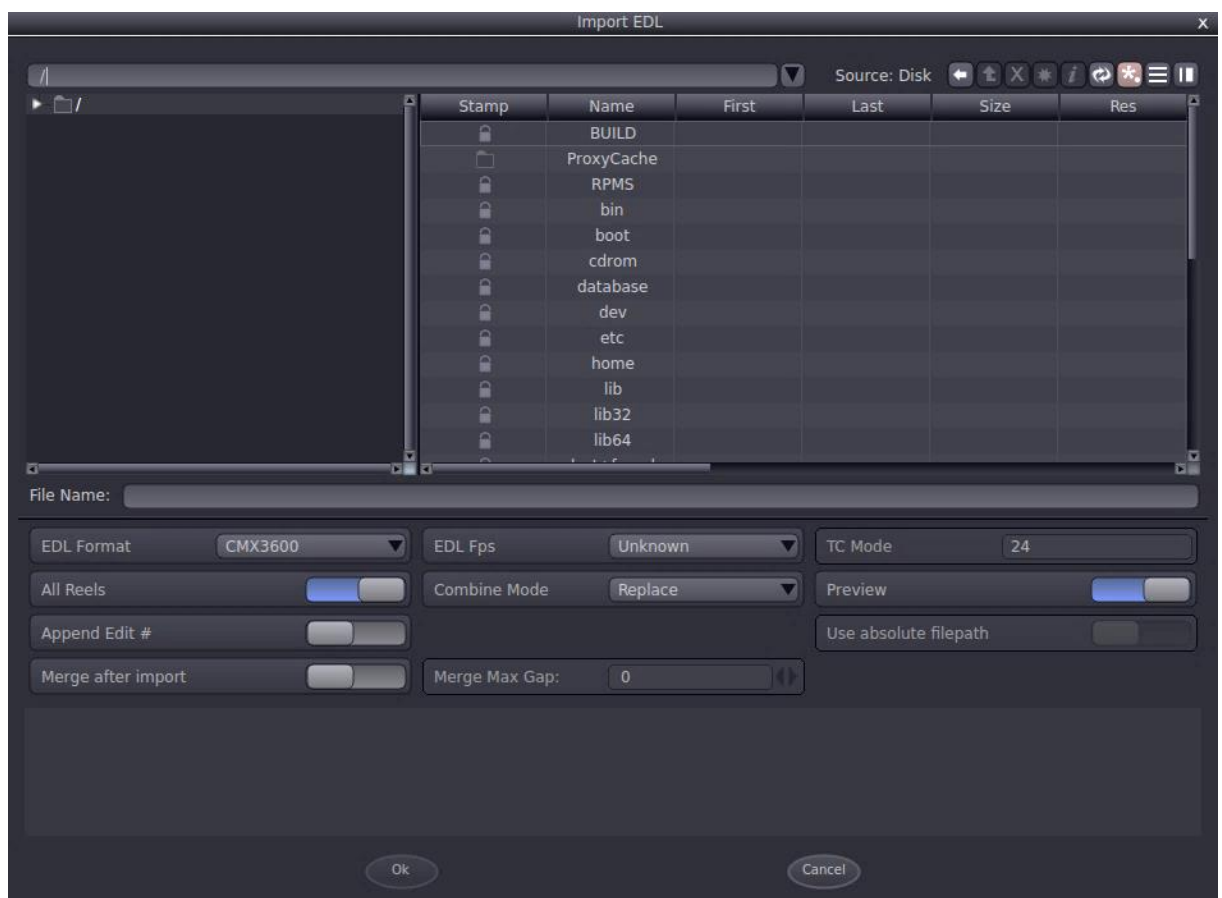


Figure 104: EDL Import List

- **EDL Format**
Available EDL formats are: CMX3600 and Keycode PullList.
- **EDL Fps**
The import dialog automatically detects the EDL's fps (frames per second) when one is selected in the browser. This is the value that was used by the system that created the EDL file.
- **TC Mode**
This is the timecode mode of SCANITY (24/25/30 fps).
- **All Reels**
In a CMX3600 EDL the source reels must be specified. This can be either all Reels (toggle is activated) or a selection of reels (toggle is deactivated). Select the appropriate reels in the dialog below.
- **Combine Mode**
The Combine switch determines if the current transfer list is replaced by the new list (Replace) or not (Append).
- **Preview**
Allows to switch the Preview window for the EDLs on or off.
- **Append Edit #**
Turning the Append Edit Number check box to on appends each reel the edit-number while importing. This makes it possible to save each scene in a separate folder. The Append Edit Number check box is switched off by default.
- **Merge after import / Merge Max Gap**
Transfer Items in the list that are close together can be automatically merged into one transfer item. Specify the maximum gap between them to decide if the merge can be performed.
- **Use Absolute Filepath** (Keycode List only)
If checked, you can use an absolute image path in the kcl. If unchecked the image path is relative to the current directory of the Target Browser.

During the import of an EDL into the transfer list, SCANITY searches the EDL comments for some keywords. Supported keywords are:

- **AddPath**
This path will be added to the target clip name
- **Note**
A simple note, will be displayed in a separate column in the transfer list (if turned on), might be used for sorting in the transfer list
- **CamRoll**
The camera roll name, will be displayed in a separate column in the transfer list (if turned on), might be used for sorting in the transfer list
- **LabRoll**
The lab roll name, will be displayed in a separate column in the transfer list (if turned on), might be used for sorting in the transfer list

6.8.8.2 Export

To open the EDL export dialog, move the cursor to the lower left corner and select Export -> Export EDL from the appearing main popup menu or use the hotkey Ctrl+Alt+X.

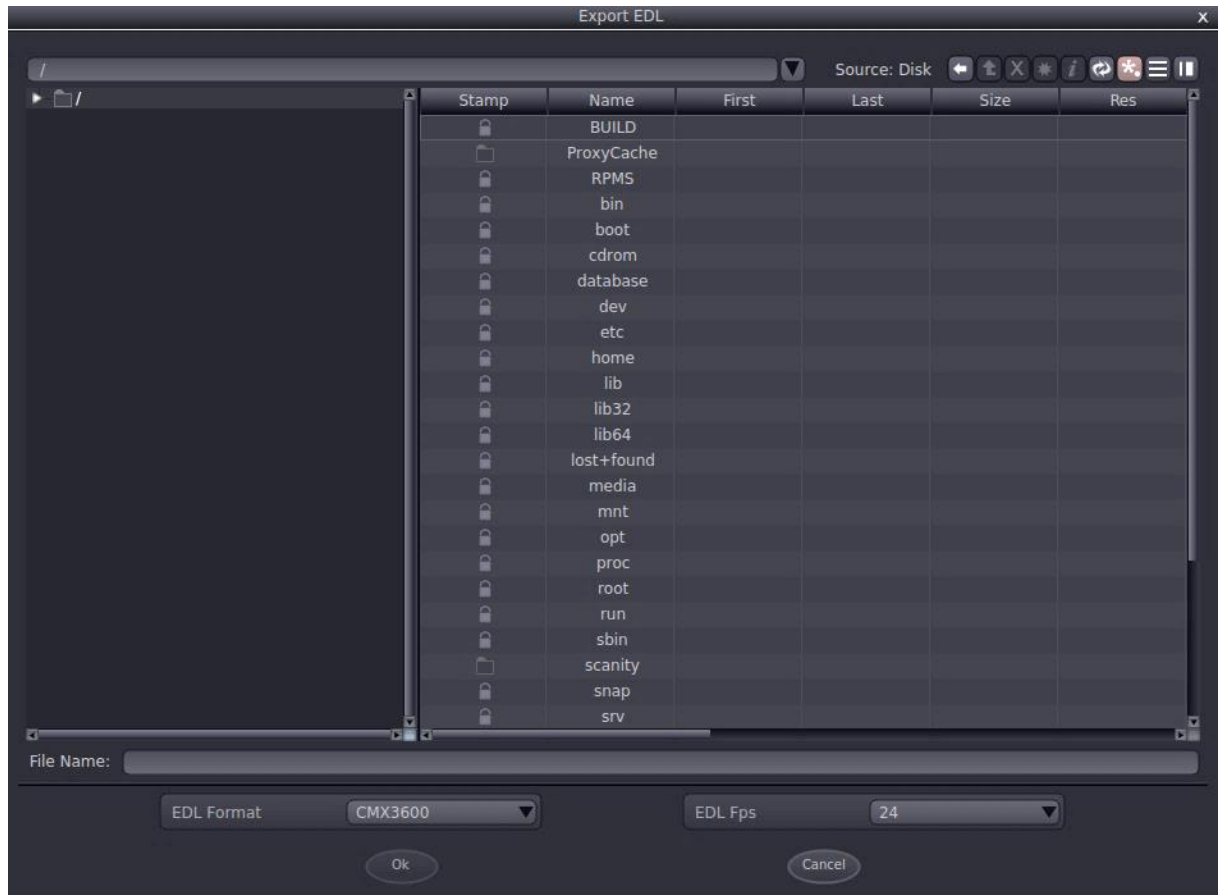


Figure 105: EDL Export Dialog

- **EDL Format**
Only the CMX3600 file type is supported as an export format in SCANITY.
- **EDL Fps**
Sets the fps-value of the list. Available values are: 24, 25, 29.97, 30 fps.

6.8.9 Transfer Log File

A transfer log file is generated containing information about the ingested material. Its name is:

`/tmp/ScanityTransfers/mm.dd.YYYY_HH:MM:SS_ScanityTransfer.xml`

The timestamp is configurable with the config element `FILENAME_DATETIME_FORMAT` in the local Scanity configuration file:

MDY generates the prefix `MM.dd.yyyy_hh:mm:ss` for filenames

DMY generates the prefix `dd.MM.yyyy_hh:mm:ss` for filenames

ISO generates an ISO-8601-conforming prefix `yyyy-MM-ddThh:mm:ss`

The directory where the file will be put is configurable with the config element `TRANSFLIST_DIR` in the local Scanity configuration file.

A transfer log file is an ASCII file and contains information about the last transfer (crash record or pull list) in an XML structure. This information can be divided into three parts:

- **CopyCmd**
The destination device (host name, start directory) is described in this section.
- **Material**
Contains the source device and the clip information (e.g. first and last frame).
- **Progress**
Indicates if the transfer was successful.

For more information about the content of a transfer log file, please see the example in Section 13.10 Transfer Log File Example.

Record and Capture

A transfer log file is created as soon as the crash record is stopped. If nothing was transferred, then it is empty.

Pull List and Keycode Pull List

The transfer log file is created whenever a single transfer item is finished. It is not created if an error occurs during the start phase of a transfer item.

6.8.10 Program Scanner Settings in a Transfer List

6.8.10.1 Scanner Settings

Each Transfer Item contains a set of scanner settings. You can apply these settings during a pull list.

The following parameters can be recalled:

- **Page Deck**, see Section 6.5.2
Resolution, Focus, Capture Speed, Fine Framing H/V
- **Page Light**, see Section 6.5.3
Light, Density Range, Positive/Negative, ColorSpace Log/Matrix/Delog, Characteristic, Filmstock
- **Page Size**, see Section 6.5.4
Everything
- **Page Archive**, see Section 6.5.5
Section „Pin Registration Modes”, Y-Aperture, Speed limit set, Acceleration set.
- **Page Dirt**, see Section 6.5.6
Everything except: Split Alpha, Split Image, Show Global Concealment, ShowXS
- **Page Audio**, see Section 6.5.7
Audio Head, Input L/R, Audio Mode, Max. Monitoring Level
- **Production Page, Tab Scanner Settings**, see Section 12.4
File Type, Packing Mode, Monochrome

6.8.10.2 Store Scanner Settings in a Transfer Item

- If the Transfer Item was created with the Add button then the current Scanner Settings are used.
- If the Transfer Item was created by Drag and Drop from the Target Browser, the Scanner Settings of the original scan are set. If the dropped scan has no Scanner Settings (if not generated by SCANITY), the current Scanner Settings are used.
- If a Transfer Item was imported from a EDL, then the current Scanner Settings are used.
- A Transfer List stores the Scanner Settings. When it is loaded again the Settings are restored.
- The current Scanner Settings can be written to one or more selected Transfer Items with Store Scanner Settings from the context menu.

6.8.10.3 Recall Scanner Settings from a Transfer Item

- Use the Context Menu Entry Recall Scanner Settings. The Scanner Settings are applied immediately.
- Run a Transfer List with Apply Settings checked.

Note: If “Auto Film Stock Detection” is switched on, none of the Light Settings are recalled. Since the detection would override the recalled settings.

Be aware that in one directory or reel all images must have the same file size. If you modify the Resolution or Size Settings, then the file size changes and you must use a new directory. Otherwise the Recall and the pull list will fail.

6.8.10.4 View Scanner Settings in a Transfer Item

The Edit-Dialog of a pull list Item contains the Tab Settings, where the Scanner Settings are visible as text (see Section 6.8.2 Editing Single Transfer Item).

6.9 Pull-List Operation

After selecting one or more items from the Transfer List one can transfer the selected material by pressing the Transfer Selected button.

- The items will be executed in the order as they are located on the film reel.
- The selected items must be either all Framecount based or all keycode based.
- In the case of a mixture of both types the user will be asked which type the list execution should cover.

During the execution of the list the status of the items are updated as they go. Transfer Items with an Error or Completed status will not be executed unless they are reset before the transfer is started.

6.9.1 Framecount Based Pull-List Operation

The filmdeck cues to the front of each entry before playing over the item and recording the received images on disk.

7.9.2 Keycode Based Pull-List Operation

In a keycode Pull-List operation the internal control does not know where each individual keycode based item is located on the film reel. This is due to the nature of keycode and the fact that the reels to be scanned might be cut together.

The keycode search phase starts when the user presses the Transfer Selected button. The filmdeck searches with 0.25k resolution from the current position for the next start keycode. Then the system performs a preroll and records the transfer item.

Speedup if Film is Laced Tail out

If the film reel is laced tail out or the filmdeck plays reverse the machine searches reverse for the first start keycode and starts the list from there.

Speedup if all Keycodes are Known

If all keycode segments have been played over since the last Clear Cache or FilmDeck Standby off, then the filmdeck cues immediately to the start of the first transfer item and starts the list from there.

Error Conditions

If Transfer Items are omitted, the keycode search speed might be too high. In this case reduce the search speed, see Section 11.3.1 Scanner on page 295.

6.10 Audio Scanning



Figure 106: Ingest Audio

6.10.1 Activating Audio Scanning

In order to activate Audio Ingest open the Audio menu (see Section 6.5.7 Audio Page) and enable Ingest Audio.

6.10.2 Audio Preview Window Display Options

This preview window is used to display both audio and video data. It can be splitted into two windows. Click on the small View layout button in the timebar, see section 6.2 for details.

6.10.3 Audio Peak Meter

The Peakmeter view is in the Monitors Window. The Peakmeter can be switched on or off by clicking on the right mouse button in the Monitors window and activated/deactivate the option Peakmeter.

The Peakmeter is used to display audio levels and peak values of each audio track that is used. It displays each channel of an audio track. So, if an audio track contains 2 channels, the Peakmeter will show each audio level of the track separately.

6.10.4 Audio Target Browser

The Target Browser is used to select the target where the audio files should be stored. Possible targets are Sound rolls for audio and Lab rolls for video files.



Figure 107: Audio Target Browser in Reel Mode

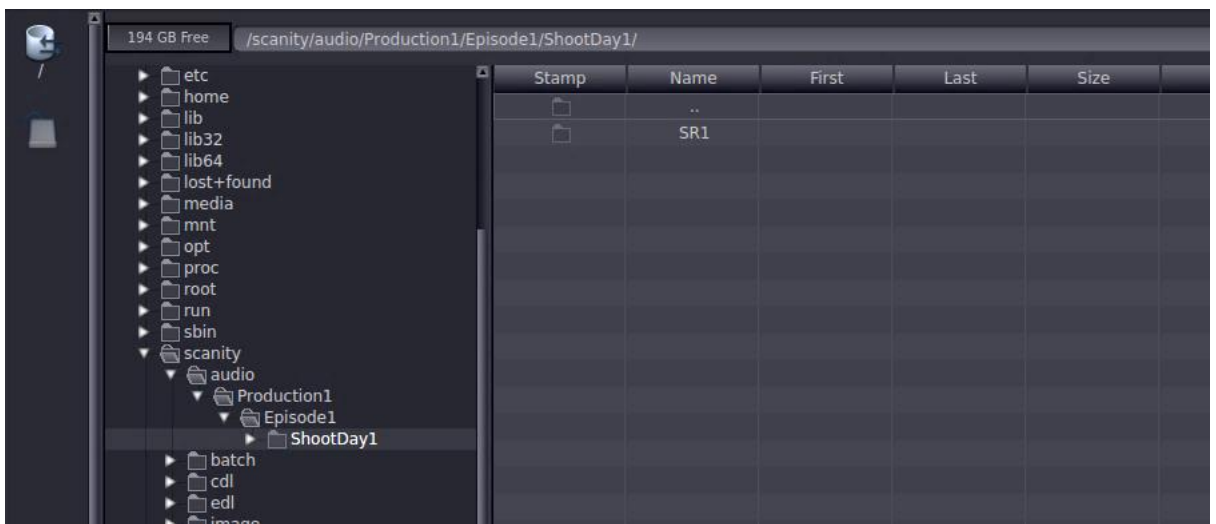


Figure 108: Audio Target Browser in File Mode

6.10.4.1 Create a Sound Roll

The Create Sound Roll button is used to add new sound roll(s) to the production. The new sound roll(s) appear in the Target browser and will be automatically incremented in their name (e.g. SR001, SR002, ...).



Figure 109: Create Sound Roll Button

- Click on the Create Sound Roll button to create a new sound roll for the production. This will create a directory in the shoot day directory for audio.
- To rename a created sound roll, click on the name of the roll. The name of the sound roll is changed to a small input field where the new name can be entered.
- For the Audio Ingest, it is possible to create as many sound rolls as you need.
- After checking all settings and creating the rolls, press the Capture or Record button and image will be added to the desired labroll and audio goes into the corresponding sound roll.

6.10.4.2 Automatic Audio Assemble

Audio files are automatically assembled at the end of an ingest if the newly recorded audio segments fit to the end of the last recorded audio segment.

This does only work if all the following conditions apply:

- The filmdeck was not brought to standby off since the last audio ingest
- The new audio segment is ingested into the same directory / sound reel as the last one.
- The start framecount / timecode is adjacent to the last ingest segment or is located in between the start and the end of the last ingested audio segment.

If there is an overlap of audio data as described in the latest condition, the content of the last ingested audio segment will replace the content of the previous one.

This functionality can be turned off on the Setup page in the Global -> Scanner Settings.

6.10.4.3 Audio File Playback

With drag and drop or double click the ingested audio file can be played separately from the video clip.

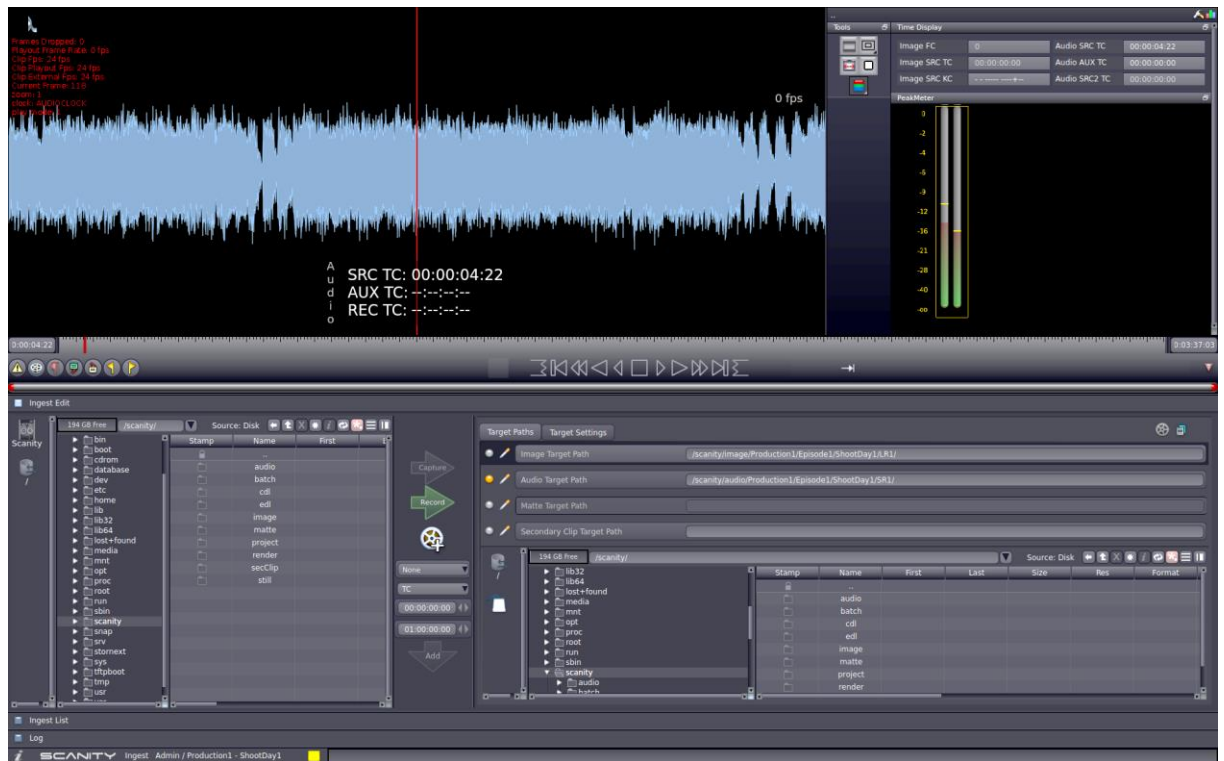


Figure 110: Audio Playback Menu

6.10.5 Ingest List

The List panel displays the images which will be transferred from a source to a target. See Section 6.8 Transfer List for a complete description.

With the Audio Option installed the table contains a additional column:

- **Audio Target Path**
Displays the directory where the audio files are stored in.

6.10.6 Properties Overwriting

The Properties Overwriting function allows to change the sample rate, frame rate and timecode start values in an audio file, without changing any audio data. This function is available in the context menu of the browsers.

Make a right mouse click on the audio file, that you want to modify and chose Overwrite Properties.

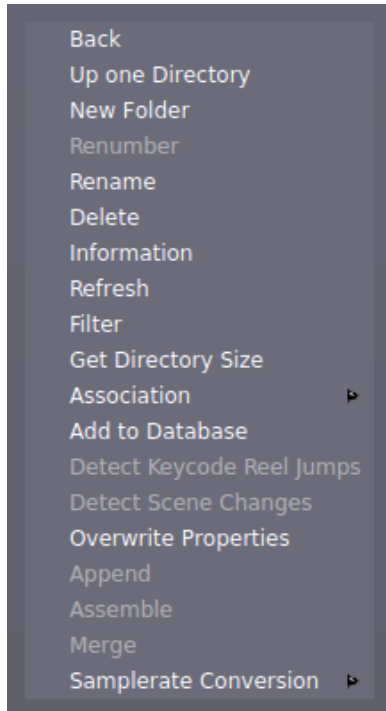


Figure 111: Browser Context Menu

After this, the Properties Overwriting Dialog appears, where the new properties for the audio file can be set.

If the audio file you want to modify contains take markers, a warning message will be displayed, because all take markers will be deleted after modifying.

It is also possible to select more than one audio file for modifying. For that, select all audio files in the browser you want to modify and make a right mouse click on one of them and chose Properties Overwriting from the appearing context menu. In this case, the TC Start field in the Properties Overwriting Dialog is disabled, because it is not possible to set the same TC Start value for more than one file.

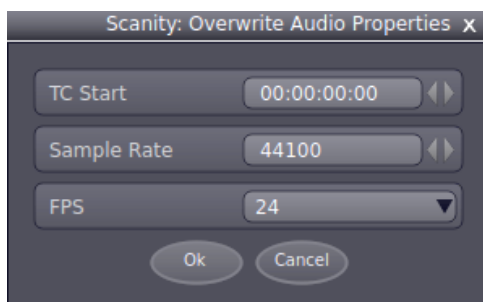


Figure 112: Properties Overwriting Dialog

6.10.7 Append, Assemble and Merge

6.10.7.1 Append

Is used to append two or more audio tracks to one new track together. In the case of Append, the audio tracks will be attached one after another. So, the result is a new file, that has been the length of all appended audio tracks.

6.10.7.2 Assemble

The assemble mode works like append but does assemble the file in the order of their source framecount / timecode. If there is an overlap in framecount /timecode the new file content will be preferred.

6.10.7.3 Merge

Is used to merge two or more audio tracks to one new track together. In the case of Merge, the audio tracks will be attached among one another. So, the result is a new file, that has been the duration of the longest audio track, but with new channels.

To do such a Append or Merge, select the files you want to append or merge, make a right click on one of them and chose either Append or Merge form the appearing browser context menu.

After this, a new window appears, where the settings for the append or merge can be set. For an example of this window and its setting options, refer to the following window:

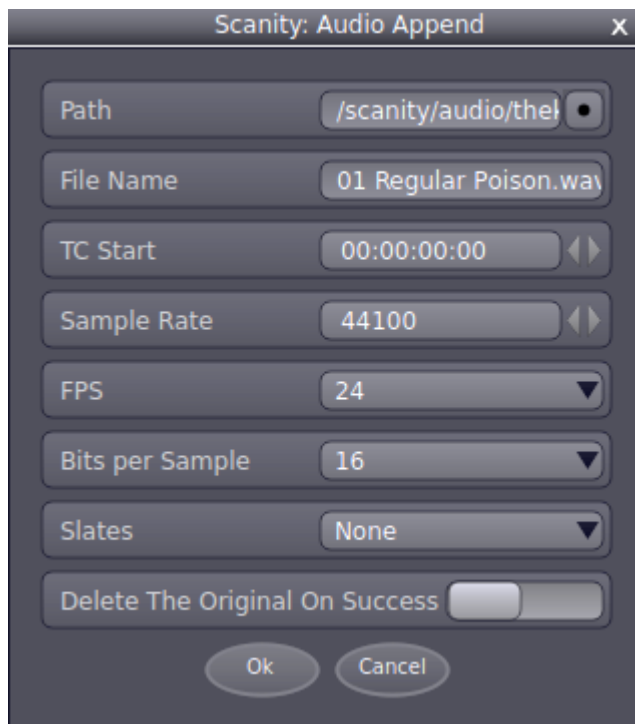


Figure 113: Append or Merge Dialog

- **Path**
Defines the location where the new created Audio file will be stored. As default, the current directory is always set.
- **File Name**
Defines the file name of the new file.
The default for this field is NewFile.wav
- **TC Start**
Defines the TC Start value of the new file.
Per default the TC Start of the first audio file is set.
- **Sample Rate**
Defines the Sample Rate of the new file.
- **FPS**
Defines the frames per second of the new file.
- **Bits per Sample**
Defines the bits per sample.
- **Slates**
Defines how the existing slates will be managed. Available settings are:
 - **None**
The generated file will have no slates information, no slates are detected automatically.
 - **Automatic Detection**
After the merge or append procedure, the automatic slate detection will be performed.
 - **Copy from original**
The slates information will be taken from the source files and adopted by the new generated one.
 - **Delete the Original on Success**
Defines if the original files will be deleted after a successful merge or append procedure.

Note: If the location of the original files is read-only, an error message will be displayed after the activation of the Delete The Original On Success check box.

7. Batch Processing Page

After scanning (recording) film frames as files, usually some further processing is required.

Most of that processing can be done using one and the same setting for many scans, rolls or projects - let's call this versioning. Some may require an individual scene by scene adjustment in order to achieve a explicit look usually performed by a colorist with a creative intension.

Batch processing allows creating a version of the original scan. This may include:

- Color correction (Printer Light, Lift-Gamma-Gain) or 3D look-up table e.g. to achieve a different colorimetry or a conversion to a different color space.
- Transforming to achieve a different resolution or aspect ratio.
- Output processing to achieve a different file format e.g. quick-time.
- Furthermore, a grain reduced version can be created if necessary combined with some contour correction.
- This processing can be performed automatically if once set-up and enabled and is executed in the background.

There are two implementations available:

- Using the processing capacity of the SCANITY workstation whenever the workstation is idle. Scanning and other film deck functions have priority and will stops the batch processing in the background. This is going on if unprocessed jobs are waiting in the batch processing list. The 2nd set of files than will be available a little later than the original files.
- A 2nd workstation (render workstation) can be connected to support the batch processing in the background event if the SCANITY is scanning. This will result in the 2nd file version to be available nearly at the same time as the original files and saves some waiting.

The batch processing improves the efficiency and flexibility of the SCANITY and likely makes some down-stream systems redundant which saves time and cost.

Note: Only Images are processed here. Audio material cannot be processed!

The Batch Processing page is separated into different areas.

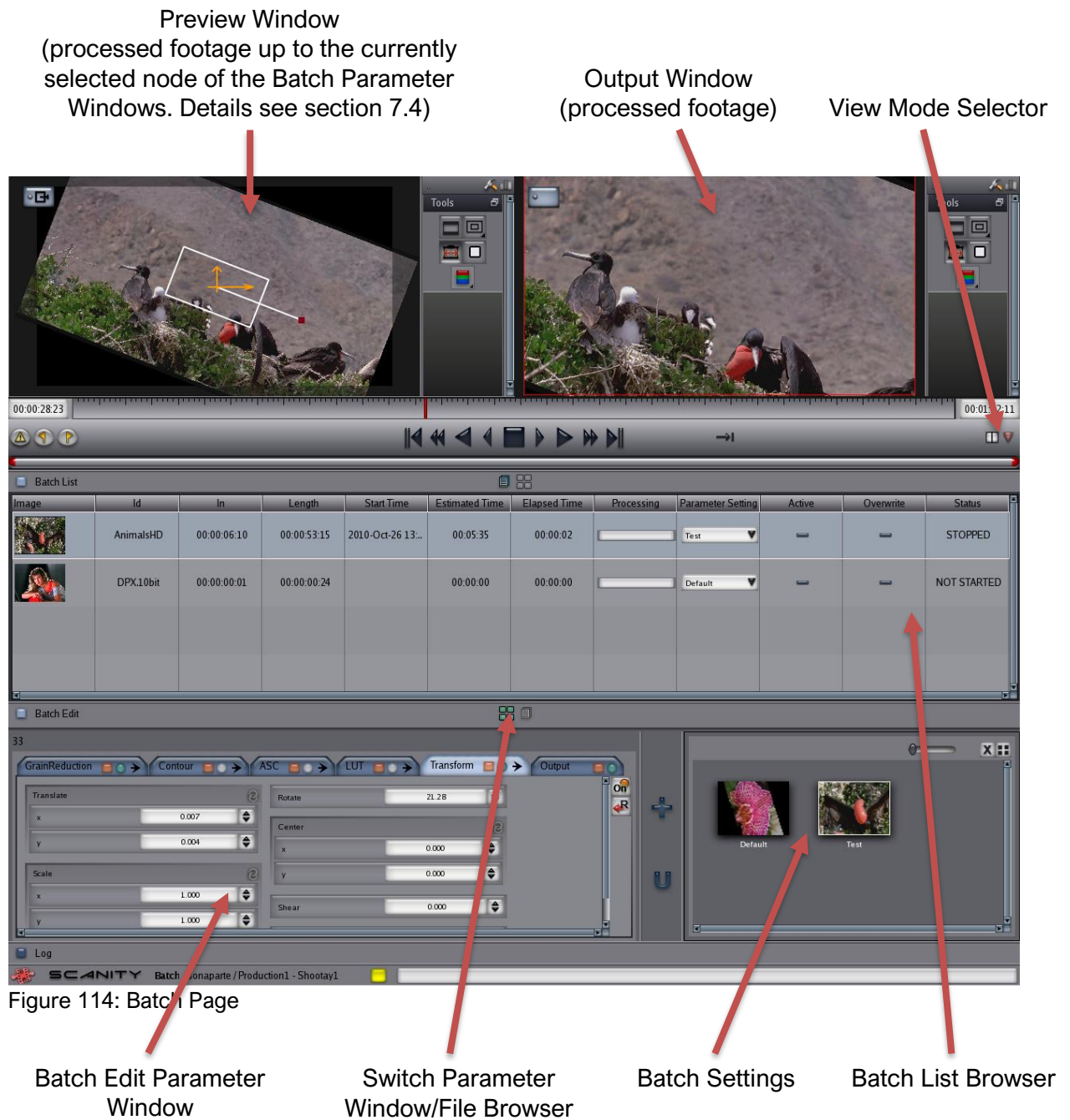


Figure 114: Batch Page

7.1 Viewer

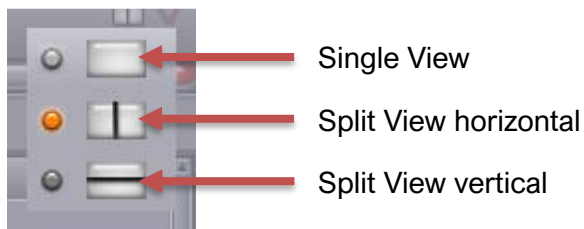
The Viewer displays:

- either the current item of the batch list. Double click on an item to make it current.
- or any clip which is dragged from the file browser (see Section 7.4 File Browser).

The viewer can optionally be put into a split view.

This displays one frame in different processing stages.

- The left viewer displays the footage up to the current node. This helps finding the correct processing parameters.
- The right viewer displays the final processed footage.



Only one frame may be viewed at a time, even if the viewer is in split view.

7.2 Batch List Browser

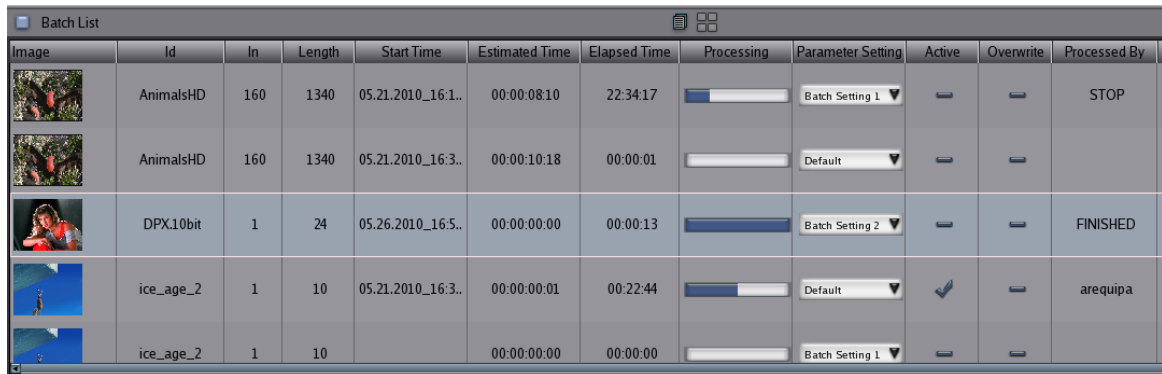


Image	Id	In	Length	Start Time	Estimated Time	Elapsed Time	Processing	Parameter Setting	Active	Overwrite	Processed By
	AnimalsHD	160	1340	05.21.2010_16:1..	00:00:08:10	22:34:17		Batch Setting 1	☐	☐	STOP
	AnimalsHD	160	1340	05.21.2010_16:3..	00:00:10:18	00:00:01		Default	☐	☐	
	DPX10bit	1	24	05.26.2010_16:5..	00:00:00:00	00:00:13		Batch Setting 2	☐	☐	FINISHED
	ice_age_2	1	10	05.21.2010_16:3..	00:00:00:01	00:22:44		Default	☒	☐	arequipa
	ice_age_2	1	10		00:00:00:00	00:00:00		Batch Setting 1	☐	☐	

Figure 115: Batch Page

The list design can be switched between table and proxy image.



Figure 116: Batch List Design buttons

All Batch Items are displayed here with relevant information. There is a process bar which depicts how much of an item has been processed. Items on top of the list are processed first.

Change the processing order by moving items in the list.

Editable Fields are:

- **Parameter Setting**
Select the Settings you want to apply to the clip.
- **Active**
Add or remove the clip to/from the processing queue.
- **Overwrite**
If checked, allow overwriting of already rendered images.

It has a context menu which allows to control the render process:

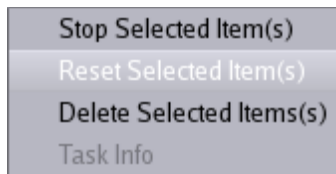


Figure 117: Batch Task Context Menu

- **Stop Selected Item**
Remove the clip from the processing queue.
- **Reset Selected Item**
Resets the processing status. This allows to repeat the processing with changed settings.
- **Delete Selected Item**
Deletes the render item from the list.
- **Task Info**
A dialog appears with information about the selected task.

7.2.1 How to add Items to the List

- Use the File Browser to drag a clip in the list.
- If the Batch Process switch is enabled in the Ingest Page, all scanned clips are added to the list.
- If Batch Settings are defined in the Ingest List (see Section 6.8 Transfer List), then all scanned clips are added to the list.

7.3 Batch Edit

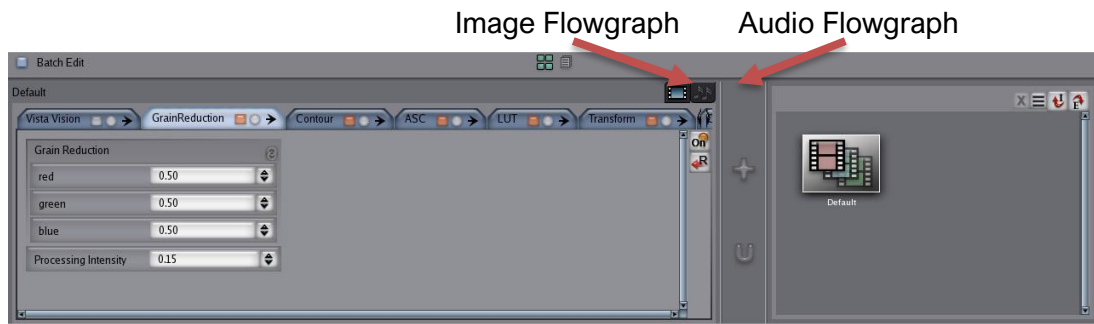


Figure 118: Flowgraph selection

The Batch Edit is divided into two Flowgraphs - Image and Audio.

In the Batch Edit you can define and store render settings:

- Use the “+” - Button to add a new setting.
- Select the setting and modify its parameters.
- Use the On button to enable a complete node.
- Use the U button to permanently store modified parameters in the selected setting.
- Use the R button to reset all modifications of a node.



Each Parameters tab contains two small status icons.

- If a tab is active, the small square turns into an orange color.
- If the default values have changed, the small dot turns green.

7.3.1 Vista Vision

If this tab is active, the image will be rotated by 90°. This is useful for 8Perf VistaVision scanning. There are no more parameters on this tab.

7.3.2 Grain Reduction

- **Grain Reduction Red / Green / Blue**

Sets the strength of grain reduction individually for each color channel. The range is from 0 to 1 in steps of 0.01.

- **Processing Intensity**

The grain threshold for the filtering process can be modified with Processing Intensity ranging from 0 to 1. Zero stands for very low grain input material where little grain filtering is required. If the grain in the input source gets higher, the processing sensitivity must be set higher in order to raise the motion threshold and thus to enable grain reduction. If the processing sensitivity is set to maximum even extremely noisy film can be processed. However, be careful with high settings, as motion artifacts may occur!

To adjust the processing sensitivity it is recommended to set processing sensitivity to maximum first and then select the desired amount of grain reduction.

In the second step the processing sensitivity should be reduced as much as possible without losing grain reduction in non-moving parts of the picture. Thus the motion threshold is adjusted right above the grain floor in order to achieve the best trade off between grain reduction and motion artifacts.

7.3.3 Contour Correction

Using the functions on this page, makes a picture look sharper. Note that this is a subjective improvement and it does not save you from focusing.

- **Sharpness**
For adjusting the contour correction in the luminance channel.
The contour correction starts with 0 and increases with POS values and decreases with NEG values.
- **H/V Balance**
For balance adjustment between H and V contour correction.
- **Noise Threshold**
To reduce the contour enhancement for fine low contrast details like grain. The standard value 0% applies the selected amount of contour correction to all details. For grain reduction an adjustment value around 0.1 is enough. At a coring value of 1, only very high contrast details are enhanced.
- **Peaking Frequency H/V**
This function offers contour enhancement in dependence on detail size (spatial frequency). In order to enhance small picture details, select a higher value (high values correspond to high frequencies), to enhance contours of coarse details, select a low value. The controls for vertical and horizontal peaking can be handled separately. But if there is no need for split settings, use the Gang function.

7.3.4 Primary Color Correction (ASC)

The ASC color correction is separated in the index cards LGG (Lift, Gamma, Gain) and PL (Printer Lights).

The ASC color correction allows adjustments according to the standards of the American Society of Cinematographers (ASC). Thereafter, modifications to Lift, Gamma, Gain and Saturation can be made. The ASC changes colors for the whole image, so it is an easy way of setting corrections which refer to a sequence.

The general steps for working with the ASC color correction are adjusting and fine tuning the desired appearance of the image by dragging the sliders for red, green, blue and offset.

The Printer Light index card makes it possible to modify the values for RGB. Each color has up and down arrows to allow value modification.

7.3.5 3D Look-up Tables

The LUT parameter windows is used to import LUT files. A LUT files is a Look-Up-Table to overcome the problems in working with color space differences in film material and post production monitors. The external generated data will allow color space conversion from the film material to the color space of a defined monitor for post production working. The added LUT file will adjust the current material.

- Select the LUT file name from a list.
- The added LUT file will now be applied to the current material for the whole sequence.

Supported LUT files are:

- **3D binary LUT**
Format: LUTher
- **3D ASCII LUT**
Format: Phantom
- **1D ASCII LUT**
Formats: Phantom, Autodesk=Discreet, Megadef
- **1D ASCII LUT**
Format: Alexa

7.3.6 Transform

Transform provides different methods that can be used to transform a picture. These functions are translation, rotation, scaling and shearing. Additionally it is possible to change the center position from the middle of the image to another position.

The general steps for working with Transform are:

- Defining a working point by using center.
- Changing the image to the desired look by using translate, rotate, scale and shear.

Modification Parameters

All these functions (Center, Translate, Rotate, Scale and Output Size) can also be changed graphically in the preview window.

To keep the current ratio for following adjustments in x- and y-direction, the Gang needs to be enabled. For that the small ring icon in the Translate, Scale or Center fields must be activated.

- Before transformation can be adjusted, a working point needs to be defined. This will be done with Center. By default the values are 0 for x and y, which is the middle of the image. These settings are important for rotating the image. Different rotating points will produce different results of the end position. If settings are made for translate or scale and the center position is now changed, all new adjustments will be calculated to the new center position. So, the Center should be adjusted first.
- Shear will slant the image. Negative values let the image lean to the right side and positives to the left side. Besides Center, Translate, Rotate and Scale, the Shear option cannot be adjusted in the preview window. It is only possible to change values by entering them in the setting field.
- Scale will change the size of the image, whereas x will adjust the height and y will change the width. This can be done for each factor individually, or to keep the aspect ratio for both at the same time. For that the Gang needs to be activated.
- Rotate will turn the image clockwise. Entered values are in degree. Displacing the image is possible by changing the values for Translate. This will move the image right or left for x and up or down for y.
- The Output Size option should be set fixed to Input.

7.3.7 Output

The Output tab including a traffic light type indicator at the upper left corner, that shows if the selected combination will create a valid file and is supported by SCANITY or not.

If the selected values are possible with each other, the square is green and if the values are not available or not supported, the square will be red.

- **File Name**

The filename of the output file can be set here. There is a path proposal using production settings (e.g. \$PRODUCTION\$ = production name) that can be modified in the select clip dialog.

All place holders for the filenames can be combined in each order. It is only necessary to separate each place holder with a /.

The following table shows an overview of all possible place holders:

Place Holder	Description
\$RENDER_STORAGE_PATH\$	The Render Storage Path as defined in Production
\$PRODUCTION\$	Name of current Production
\$EPISODE\$	Name of current Episode
\$SHOOTDAY\$	Name of current Shoot Day
\$SRC_NAME\$	Name of the source clip, as displayed in the Batch List Browser

- **Include Source Name in File Name**

If selected the placeholder \$SRC_NAME\$ contains the name of the source clip.

- **Resize Mode**

Possible selections are Center, Inside, Outside, Both. Selects how the image is resized during creation of output file

7.3.7.1 Image Resolution

Selects the image resolution of the output file. In most cases, the format selection is enough. Existing formats can be modified by using different values for width, height and pixel aspect ratio.

Image aspect is calculated on selected parameters.

- Video Frame Rate

Defines the video sample rate for the files.

- Audio Sample Rate

Defines the audio sample rate.

7.3.7.2 Parameters (Alphabetical Order)

The following shows an alphabetically sorted list with all setting parameters for the file formats. According to the selected file format, not all setting parameters are available.

- **Audio Bit Rate** (AVI, DVD, MP3, MPEG, QUICKTIME)
Audio bit rate can be selected here. Changing the bit rate will increase/decrease file size and image quality.
- **Audio Codecs** (AVI)
Possible audio codecs can be selected here.
See actual release notes for a list of supported file format/codecs combinations.
- **Audio Preset** (FLV)
Selects No, AAC.
- **Auto Video BitRate** (MPEG4, QUICKTIME)
On/off
- **Bit Size** (BWF)
Only available for audio timeline.
- **Bits per Component** (Kodak Cineon, DPX)
Bits per component in output file (8/10/16 bit RGB).
- **Color Components** (DPX, TIFF)
RGB, RGBA, Y only, Alpha only, selects the color components to be written / inserted in the file.
- **Color Format** (QUICKTIME)
Set 4:2:2 for highest quality. Set 4:2:0 for greyscale sources.
- **GOP Size** (AVI, MPEG, MXF, OGG, QUICKTIME)
GOP (Group Of Pictures) consists of all the pictures that follow a GOP header before another GOP header. The GOP layer allows random access, because the first picture after the GOP header is an „Intra picture“. That means that it does not need any reference to any other picture. Remark in MPEG encoding the stream consists of three types of pictures:
 - **I(ntra)-Frame**
Complete frame is encoded.
 - **P-Frame**
Only changes from previous frame are encoded.
 - **B- Frame**
Changes from previous and following image are encoded. B- and P-Frames are much smaller than I-Frames. Edits can only be made at I-Frames.
- **Max. number of B-frames** (AVI, MPEG, MXF, OGG, QUICKTIME)
GOP and Number of B frames defines how often an I-Frame is generated and the maximum number of B-Frames.
- **Min Video Quantizer Scale/Max Video Quantizer Scale** (QUICKTIME)
Set Min=1 Max=1 for highest quality.
Set Min=2 Max=31 for best Quality/File Size ratio.
- **Noise Sensitivity** (MXF)
Defines the noise sensitivity (0-31).

- **Number of digits** (BMP, Kodak Cineon, DPX, JPEG, PNG, PPM, TIFF)
Selects the number of digits in the filename.
- **Preset** (MXF)
RS 422, HD, IMX50
- **Quality** (JPEG)
Defines the compression level. 100 means lowest compression rate 0 best quality = largest file size.
- **Quality - Speed** (MPEG4, QUICKTIME)
Defines the rate between quality and speed: Fast, Balanced, Best
- **Record Mode** (AVID MXF)
Selects video, audio or both.
- **Scene** (BWF)
Scene information will be inserted in the header for identifying file content.
- **Set Project Name** (AVID MXF)
Sets the project name.
- **Speed - Quality** (MXF)
Defines the rate between speed and quality (0-31).
- **Start index** (BMP, Kodak Cineon, DPX, JPEG, PGM, PNG, PPM, TIFF)
Sets the number of the first image.
- **Take** (BWF)
Take information will be inserted in the header for identifying file content.
- **Video Bit Rate** (AVI, AVID MXF, DVD, MPEG, OGG, QUICKTIME, FLV)
Changing the bit rate increase/decrease file size and image quality.
- **Video Codecs** (AVI)
Possible video codecs can be selected here.
- **Video Preset** (FLV)
Selects HD, SD, Mobile.
- **Video Profile** (MPEG4, QUICKTIME)
Defines the video profile Baseline, Main, High.

7.3.8 Mixer (Audio Flowgraph)

The mixer provides basic mixing functions as well as adjusters for each level.

7.4 File Browser

The File Browser allows to select material for rendering. Add a Clip per double click or drag and drop to the Batch List Browser. To browse clips just drag and drop them into the Viewer.

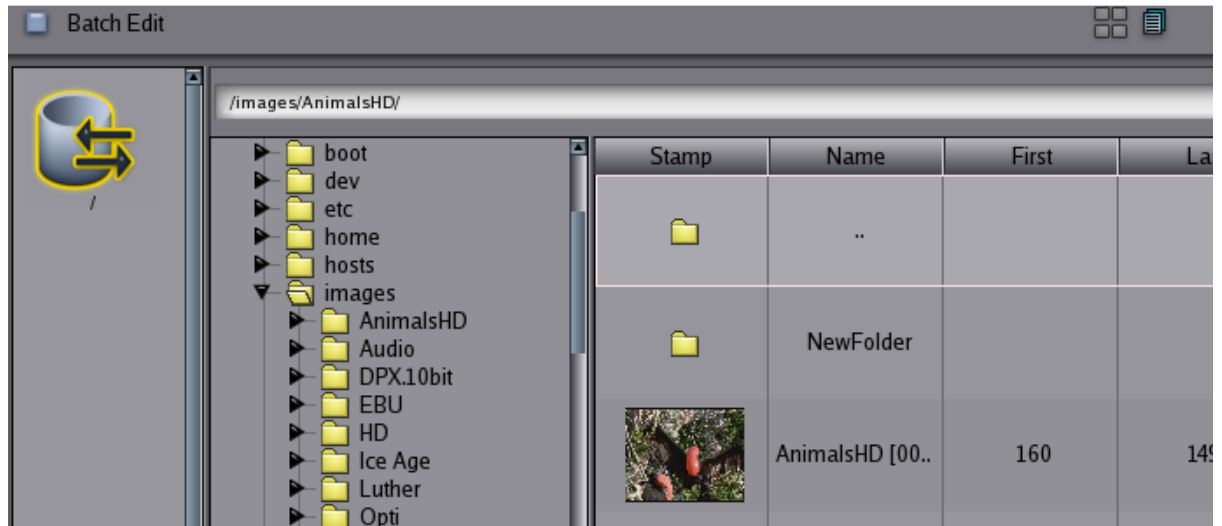


Figure 119: File Browser

8. BG Task Page

The Background Tasks Page is used to execute jobs in the background of

- the SCANITY workstation
- of a dedicated Render Workstation.

This speeds up the processing times and allows to continue working on SCANITY in the foreground. The workload can be shared between all available DFT software applications. Background Tasks are currently:

- Scanity Batch Jobs
- Scene change detection

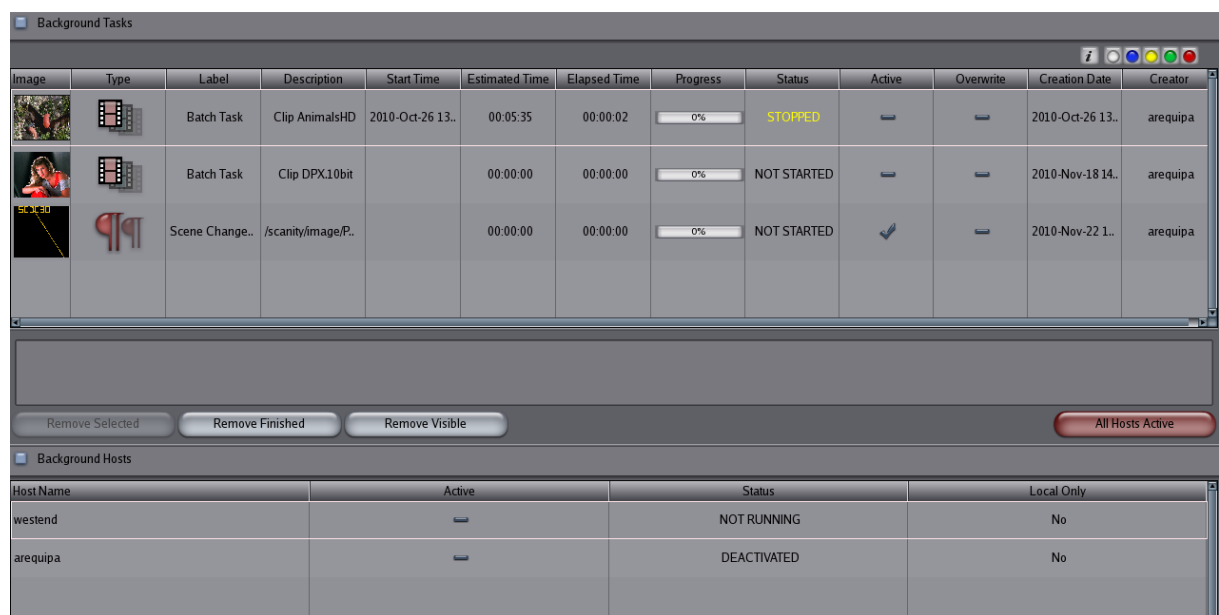


Figure 120: BG Task Page

8.1 Background Tasks Panel

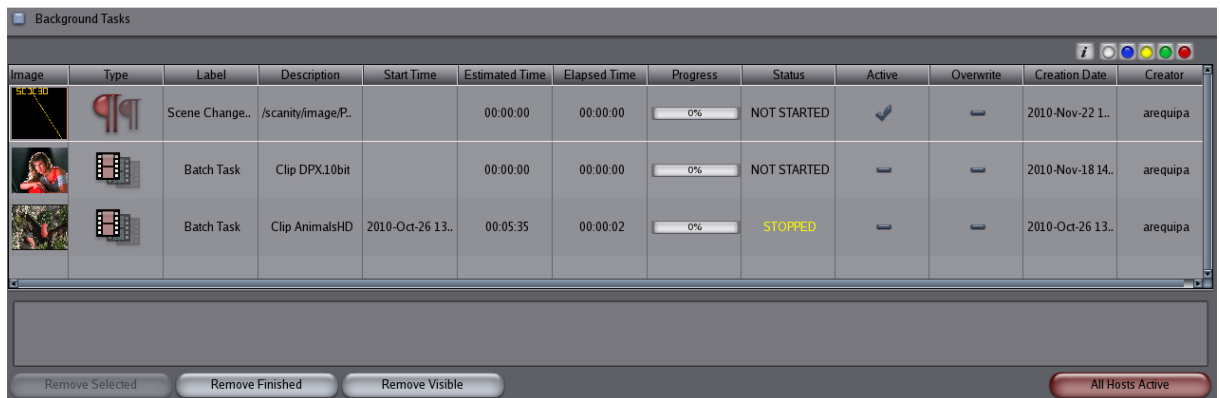


Figure 121: BG Task Panel

All Background Tasks are displayed here with relevant information. Each task has a process bar which depicts how much has been processed. Tasks on top of the list are processed first. Change the processing order by moving tasks in the list.

Editable Fields are:

- **Active**
Add or remove the task to/from the processing queue.
- **Overwrite**
If checked, allow overwriting of already rendered images.

8.1.1 Context Menu

- **Stop Selected Task(s)**
Remove the task from the processing queue.
- **Reset Selected Task(s)**
Resets the processing status. This allows to repeat the processing with changed settings.
- **Delete Selected Task(s)**
Deletes the task from the list.
- **Delete Files On Disk(s)**
Deletes all files created by the current task from disk.
- **Delete Files And Task(s)**
Deletes the selected Task and all files it had created.
It is not possible to edit an active item. Therefore, the context menu items delete and reset will be grayed out for an active item.

8.1.2 Background Tasks Description Field

The Background Task Panel contains below the tasks table an info field, to show a summary of some information about each selected task item.

For example, there will be shown information like:

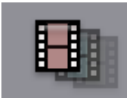
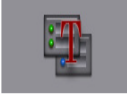
- Production Name
- Shoot Day
- User Name
- Template Name
- Timeline Name

8.1.3 Tasks Filtering

The task visibility can be configured with these buttons:

Button	Function
	Opens an information dialog
	Hides all not started tasks
	Hides all finished tasks
	Hides all stopped tasks
	Hides all running tasks
	Hides all tasks with error status

8.1.4 Tasks Types

Task Type	Description
	Batch Task
	Scene Change Detection Task
	Output Render Tasks

Use these buttons to remove all selected, finished or visible tasks from the list.

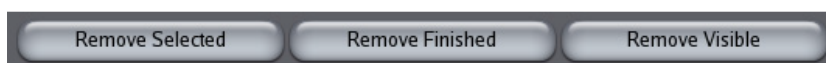


Figure 122: Remove Buttons

8.2 Background Hosts Panel

The Background Hosts Panel allows to manage all available render hosts in the network. Each DFT workstation supporting background processing is automatically added to the list if:

- The application is running
- A valid license for background rendering is available
- The application is configured to support rendering (configuration file).
- All workstations use the same database (configuration file)

Each Host is described by:

- **Hostname, IP Address**
Properties of the workstation
- **Active**
If the host is running, then it can be used for background processing.
This field can be modified.
- **Status**
 - **Busy**
Host is currently rendering
 - **Idle**
Host is idle
 - **Deactivated**
The host has deactivated the BG Render feature.
 - **Not running**
The application is not running on this host.
 - **No license**
The host does not have a proper license installed.
 - **Local Only**
Host is configured to process only tasks created by itself (configuration file).

8.3 BG Render State Field

All pages have a background render state field in the Info Panel (Section 5.4 Info Panel) at the bottom of the GUI.

Color	State
Gray	The local render host is deactivated and not available for render jobs.
Yellow	The local render host is activated and available for render jobs, but no render jobs are there to execute (Idle status).
Green	The local render host is performing a render job now.
Red	During the rendering of a background process, an error occurs.

8.4 Background Processing Workflow

The following section describes a normal workflow to create background processing items. It is subdivided in Playout Template Tasks and Scene Change Detection Tasks.

8.4.1 Scene Change Detection Task

Scene Change detection is done by invoking Detect Scene Changes in the context menu of the source and target browser as well as in the Preview timeline context menu.

The Scene change detection will automatically be done as a background process in the BG Tasks Page.

The new created scene change detection task starts automatically, if at least one render host is active.

Scene Change markers are added automatically to the appropriate position after processing the task. The scene change markers are displayed in the Time Bar and in the Metadata Window.



Figure 123: Scene Change markers

9. Production Page

Some settings cannot be changed during a running production. Furthermore, this is only possible if you are logged in as an Administrator to SCANITY Film Scanner. Otherwise all setting fields are greyed out and are not editable. Making changes in a running production, requires a restart to take them affect.

The screenshot displays the SCANITY Production Page interface. At the top, there are two tabs: 'Name' and 'Pantalon'. Below this, there are two columns of storage path settings, each with a text input field and a circular icon to its right:

- Project Storage Path: /scanity/project
- Image Storage Path: /scanity/image
- Audio Storage Path: /scanity/audio
- Render Storage Path: /scanity/render
- Defect Matte Path: /scanity/matte
- ASC CDL Storage Path: /scanity/cdl
- Still Store Storage Path: /scanity/still
- Batch Settings Storage Path: /scanity/batch
- Edit List Storage Path: /scanity/edl

Below the storage paths, there are four tabs: 'Project Details', 'Bones Image Parameters', 'Scanner Settings', and 'Miscellaneous'. The 'Project Details' tab is selected, showing a list of project information fields on the left and logo upload areas on the right:

- Client: [Text Input]
- Director: [Text Input]
- Director of Photography: [Text Input]
- Editor: [Text Input]
- Post Production Facility: [Text Input]
- Colorist: [Text Input]
- Episodic: [Text Input]
- Scan Workflow: [Dropdown Menu] (Currently set to 'Dailies')
- Client LOGO 1: [Area with 'click to add icon' text]
- Client LOGO 2: [Area with 'click to add icon' text]
- PostHouse LOGO: [Area with 'click to add icon' text]

Figure 124: Production Page

9.1 General Settings

- **Project Storage Path**
Defines the path where the project files of the production will be stored.
Default: /scanity/project
- **Image Storage Path**
Defines the path where the image files of the production will be stored.
Default: /scanity/image
- **Audio Storage Path**
Defines the location where the audio files of the production will be stored.
Default: /scanity/audio
- **Render Storage Page**
Defines the location where the render files of the production will be stored.
Default: /scanity/render
- **Defect Matte Path**
Defines the path where the matte files of the production will be stored.
Default: /scanity/matte
- **ASC CDL Storage Path**
Defines the path where the ASC CDL files of the production will be stored.
Default: /scanity/cdl
- **Still Store Storage Path**
Defines the path where the Still Store files of the production will be stored.
Default: /scanity/still
- **Batch Settings Storage Path**
Defines the path where the Batch Setting files of the production will be stored.
Default: /scanity/batch
- **Edit List Storage Path**
Defines the path where the Edit list files of the production will be stored.
Default: /scanity/edl

9.2 Project Details

In the Project Details setting register, general information of the production such as the name of the editor or the name of the colorist can be set for the production.

- **Episodic**

Allows using of the Episode-level in the DI workflow hierarchy.

The hierarchy is: <Production> / <Episode> / <Shootday> / <Reel>

If Episodic is checked, you must create an episode in your production explicitly.

Otherwise a default episode is used.

- **Scan Workflow**

Allows to switch the scan workflow between Dailies or DI. This affects the Views of the Target Browser (see Section 7.6.4 Target Browser on page 185). With the DI workflow only the File View is available. With the Dailies workflow File View and Reel view are available.

- **Client / PostHouse Logo**

It is possible to tag a production with some logos.

To add a logo, click on the field where you want to insert the logo and a small explorer window will appear. Move with the browser to the place where the logo is stored, select it and press the OK button to insert it.

Note: This setting can only be set at the beginning of a production. It is not possible to change it in an existing production.

9.3 Scanner Settings

In the Scanner Settings register, output file specific information of the production such as file type can be set for the production.

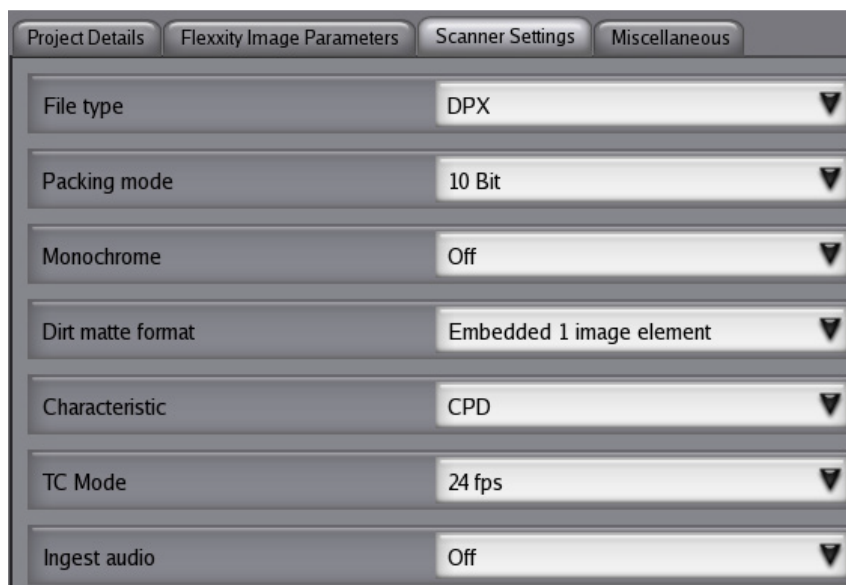


Figure 125: Scanner Settings

- **File type**

Selections: TIFF, Cineon, DPX, DPX with proxy in header.

Default: DPX

Note: Bandwidth in case of TIFF file generation might exceed the maximal system bandwidth. Please reduce the scan speed a little in this case.

Note: If DPX with proxy in header is selected, the DPX file contains a low-resolution proxy image in the headers' User Defined Area. This is a complete dpx image starting at offset 131072 (0x20000) of the HiRes-Image. With this option the dpx header is not compliant to DPX standard since it exceeds the size of 1 MB.

- **Packing mode**

Selections: 8, 10, 16 Bit

Default: 10 Bit

- **Monochrome**

Selections: Off, On, Colored

- **Off**

Monochrome Mode is off, frames will be written in RGB(A) mode.

- **On**

Monochrome Mode is active, frames will be written in Y-Only mode.

- **Colored**

Monochrome Mode is active, frames will be written in Y-Only mode.

Additionally, the viewer will display a colored image to allow to identify colored sections in a BW roll.

- **HDR**

Will switch the SCANITY into the B&W HDR mode.

In this case the transferred monochrome channel will hold the HDR signal.

The Light tab will be switched to monochrome automatically and display only one channel light setting, see Section 3.2.8 HDR Mode Option.

- **Dirt matte format**

Selections: Off, Embedded 1, Embedded 2, Separate

- **Off**

No Defect matte is stored.

- **Embedded 1 Image Element**

The Defect Matte is embedded in the image file. This is available in 8, 10 and 16 Bit Packing Mode. In 10 Bit Packing mode the 2 unassigned bits out of the 32 Bit Data word are used to store a 2 bit matte for each pixel. This is used by e.g. the HS-Art Diamant system

- **Embedded 2 Image Elements**

The Defect Matte is embedded in the image file. This is available in 10 Bit Packing Mode only. The defect matte is stored in a second 1 Bit per pixel image element with in the DPX file. This is used by e.g. Pixel Farm PFClean system

- **Separate**

The Defect Matte is stored in a separate file.

Default: Off

Note: Bandwidth in RGBA16 mode might exceed the maximal system bandwidth. Please reduce the scan speed a little in this case.

- **Characteristic**
Selections: CPD, LIN, CRT.
- **TC Mode**
This specifies how SCANITY transforms framecount to timecode.
Possible values are: 24, 25, 30 fps.
- **Ingest Audio**
If On, also audio clips are recorded along with Image clips. This control is enabled only if the Audio Option is configured.

10. Setup Page

The Setup page is mainly divided into two areas. A listing on the left side, which is divided into three parts - User, Global and Host. On the right side, all setting parameters for each list item are located.

- **User**
All setup data for the current user. Another user can have different settings.
- **Global**
All setup data which are unique for all SCANITY workstations in the facility.
- **Host**
All setup data for the SCANITY host.

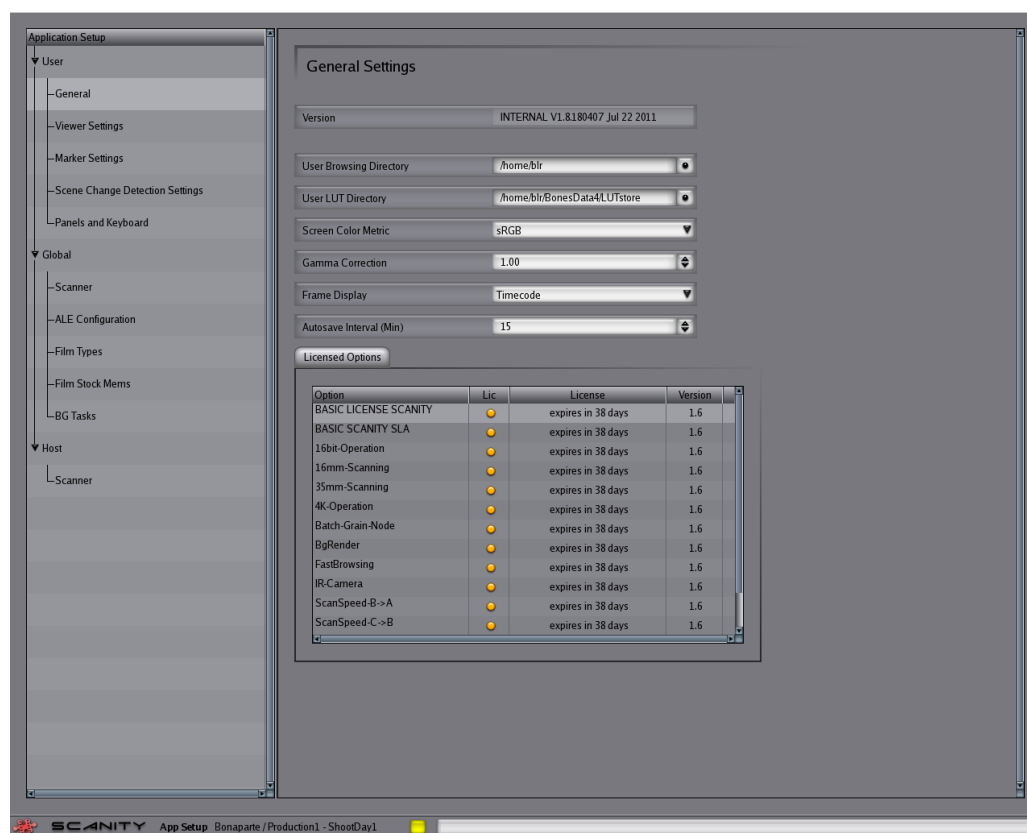


Figure 126: Scanner Settings

10.1 User Settings

10.1.1 General Settings

- **Version**
Displays the currently installed version of SCANITY. This information includes the version number (such as V2.1), a build number (such as 210045), and the build date (such as MAR 1 2012).
- **User Browsing Directory**
Defines the default directory for all browsers, e.g. on Ingest and Batch page. The default location is: /home/spirit
- **User LUT Directory**
Defines the default directory path where all LUT Import and Export file dialog windows open up. The default location is: /home/spirit/ScanityData4/LUTstore
- **Screen Color Metric**
Selects the screen color metric for the internal image preview.
Default: sRGB
- **Gamma Correction**
Selects the gamma correction.
Default: 1.00
- **Frame Display**
Switches the display between Frames and timecode.
Default: Frames
- **Autosave Interval (Min)**
Sets the interval of time to save projects automatically.
Default: 15

10.1.1.1 Licensed Options

The active licenses are displayed in a list, containing information about their runtime. Missing licenses are displayed red, permanent licenses are displayed green, soon expiring licenses are displayed yellow.

10.1.2 Viewer Settings

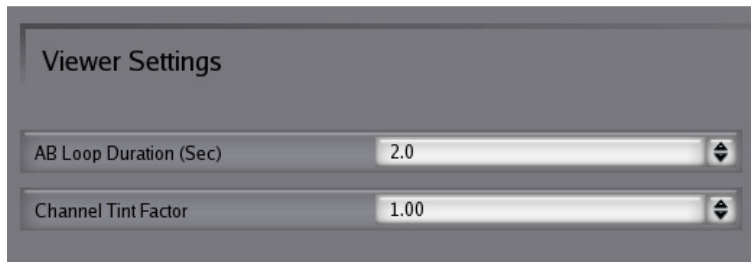


Figure 127: Setup Viewer Settings

- **AB Loop Duration (Sec)**
This sets the length of the Loop mode see Section 6.2.7 Loop Mode. Default: 2.0
- **Channel Tint Factor**
The Viewer can display either all channels RGB or only one channel. This setting applies only to the one channel mode. It specifies how the channel is tinted with the color. This setting affects only the viewer, the images stored on disk remain unchanged.
 - **Value = 0:** Not tinted, black +white
 - **Value = 1:** Fully tinted

10.1.3 Marker Settings

- **Enable Data Entry After Creating a Take Marker**
This option offers the possibility to enter the metadata values of a newly created take marker directly. The newly created take marker will be selected directly in the Meta Data Window following its creation. Otherwise the newly created marker must be selected manually before you can enter metadata values.
Default: Off

10.1.4 Scene Change Detection Settings

- **Threshold**
Defines the detection rate. The parameter ranges from 0 to 1 (default is 0.25). If Threshold is set to a high values fewer cuts will be detected and vice versa.
- **Minimal Distance (frames)**
Defines the minimal distance in frames between two detected scene changes.

10.1.5 Panels and Keyboard

A default set of hot keys is provided with the SCANITY application. These keys can be edited by the user in the Setup tab.

Note: Hotkeys are only working if the appropriate Page has the keyboard focus. If e.g. an Input-Field has the focus, then Hotkeys do not work. Then click in the Page with the mouse or exit the input dialog.

- **Import**

The Import button allows to import hot key settings.

After clicking the Import button, a dialog appears.

Browse to the folder in which the hot key file is stored and press the Open button to import the file.

- **Export**

The Export button allows to export hot key settings.

After clicking the Export Button, a dialog appears. Browse to the folder where the hot key file is to be stored and click the Save button.

- **Load**

The Load button allows the user to recall the default settings for the selected keyboard/panel.

- **Reset**

The Reset button enables the user to establish connections to the Tangent Panels during runtime. That will work for reconnections if the connection was lost because of an error and if a panel is added after starting SCANITY. In this case the panel needs to be configured in the Scanity.config file before using it.

10.1.5.1 Changing Hot Key Assignments

It is possible to edit predefined hot keys for keyboard and panels. For that do the following steps:

1. Move to the hot key that you want to modify in the table list of the keyboard.
2. Make a double click on the desired entry in the System Keyboard row of the table view. After that, a small info dialog in the middle of the screen will appear and asks for the new hotkey assignment.
Press on the keyboard/panel the hotkey combination that you want to use, and the small info dialog will disappear. After that, the new hotkey will be assigned.
It is also possible to change the Sensitivity/Acceleration of the keys. For that, click on the entry in the Sensitivity/Acceleration row of the table view you want to modify, and the following dialog will appear where the new settings can be done.
3. Furthermore, it is possible to import or export hotkey assignments for the keyboard or panels. For that the Import/Export tab must be chosen.

10.2 Global Settings

10.2.1 Scanner

- **Keycode Offset Mode**
Allows to switch the keycode Offset Mode between Frame and Perf. This entry is set in the DPX Header.
- **Associate Image and Audio Clips when recording**
This specifies if recorded audio clips and image clips are associated.
- **Try to Assemble Audio Clips After Recording**
If this switch is enabled consecutive audio fragments in the recording folder will be merged automatically.
- **10 Bit Y Only Mode A**
SCANITY usually will generate a DPX V2.0 conform images in the 10 Bit Y only B image packing mode, which is used in the SPIRIT family.
This switch allows to change the image packing to the DPX V2.0 conform 10 Bit Y only A mode.

- **Video Standard SDTV**

Selectable output resolutions for SDTV are:

Resolution	Standard
- 704 x 576	PAL 4:3
- 720 x 576	PAL 4:3
- 704 x 576	PAL 16:9
- 720 x 576	PAL 16:9
- 704 x 480	NTSC 4:3
- 720 x 480	NTSC 4:3
- 704 x 480	NTSC 16:9
- 720 x 480	NTSC 16:9
- 704 x 576	SD Square Pixel
- 704 x 480	SD Square Pixel
- 720 x 576	SD Square Pixel
- 720 x 480	SD Square Pixel

- **Video Standard HDTV**

Selectable output resolutions for HDTV are:

Resolution	Standard
- 1920 x 1440	HDTV
- 1920 x 1080	HDTV
- 1440 x 1080	HDTV
- 1280 x 720	HDTV

10.2.2 ALE Configuration

- **Export Directory**

Defines the directory where the exported ALE files will be saved.

To edit this directory, click on the right button and select a new folder. It is also possible to type the new path in the Export Directory field.

The default location is: /home/spirit/ScanityData4/AleExport

The Reset button resets the Export Directory to the default location.

- **File Extension**

This defines the file extension of the exported ALE file.

To modify this value, make a left mouse button click in the field and enter the new file extension. The default file extension is .ALE.

- **End of line**

Defines the setting of the end of line value for the export.

This value can be modified by selecting an entry from the available pulldown list.

Selectable values are CR/LF, CR or LF.

- **Include Tape Striping Elements**

Defines if the Tape Striping Elements should be exported within the ALE File or not. Default: Off

With the check boxes in the Export column, it is possible to decide whether the ALE field will be exported or not. It is also possible to rename or change the SCANITY Model or SCANITY Data fields, as well as to enter a default value for certain entries.

The first five entries in the table are always activated for export. This setting cannot be modified for these five entries.

It is also possible to change the order of the ALE fields (up and down). So, for example, it is possible to move a lower entry in the table to an upper position. Select the value you want to move to and press the Move row up button till it gets to the desired position.

If you want to create a user defined ALE field, you need to press the Add new row button and a new value will be inserted at the bottom of the table.

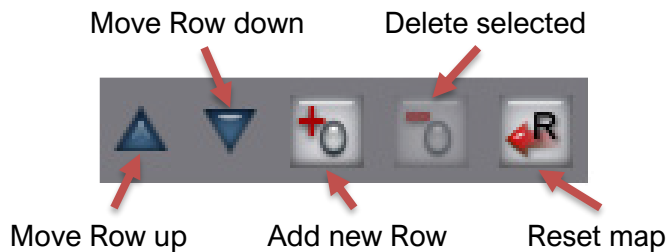
Set all values for the newly created ALE field, such as name, SCANITY model, default value and whether the entry should be exported or not.

If you want to delete an ALE field, keep in mind that only ALE fields created by you can be deleted. To delete such an entry, select it in the table and press the Delete Selected row button.

10.2.2.1 ALE Fields

The setup section of the ALE Configuration also contains a table view with all available ALE fields. It offers the possibility to define each entry, whether it is exported within the ALE file or not.

Furthermore, it offers the possibility to create user defined ALE fields.
ALE fields configuration buttons:



10.2.3 Film Types

The handling of Film types is explained in detail in Section 12.2 Film Stocks and Film Types on page 301.

10.2.4 Film Stock Mems

The handling of Film stocks is explained in Detail in Section 12.2 Film Stocks and Film Types on page 301.

- **Store**
The current light settings are stored in a FilmStockMem. This mem is also automatically applied. The PrinterLight settings turn to unity for each color.
- **Delete**
Deletes a selected Filmstock.
- **Rename**
Allows to rename a selected Filmstock.
- **Import**
Film Stocks can be imported from a plain text file which is previously exported from another SCANITY system.
- **Export**
All Film stocks are exported to a plain text file.

10.2.5 Background Tasks Settings

- **Remove Finished Tasks After (Days)**
Defines a distance after which days finished tasks should automatically removed from the Background Tasks Page.
- **Create Log Files for File Rendering**
Defines if log files after file rendering should be created or not.
- **Render Logfile Directory**
Defines the directory in which the log files will be stored.
- **Delete Log Files After (Days)**
Defines a duration of days, after the created log files will be deleted automatically.

10.3 Host Settings

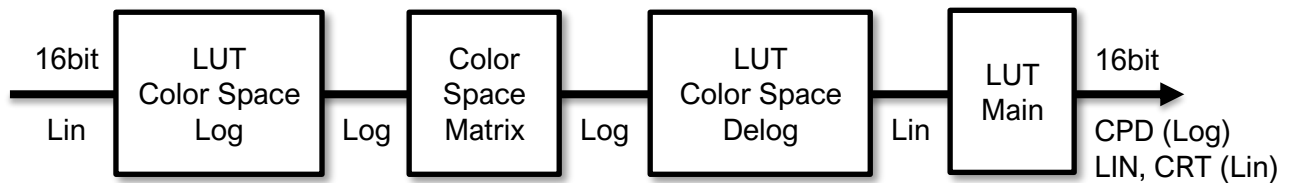
10.3.1 Scanner

- **Film Deck Light**
This determines the light in the Filmdeck. Selections are Off, On and Auto (off during ingest, otherwise on).
- **Write DPX Proxies**
Store a low-resolution image additionally when scanning.
Path name of proxy images is: "/ProxyStore" + <path of the HiRes-Image>
Note: Link the path "/ProxyStore" to a separate disk! Using the same disk as for HiRes-Images will disturb recording!
- **Auto Stop at Film End**
Normally the filmdeck stops at the end of the reel to prevent that the film runs out. Disable this behavior with this option.
- **Auto Rescan**
With this feature enabled the filmdeck automatically rescans the current displayed image as soon as one of the image manipulating parameter controls has been touched like PrinterLights, FilmDensity, Framing, Focus, FilmStock, LUT etc... This all happens only if the filmdeck is standing still.
- **Enable Some Controls During Record**
During Scanning, all Scanner Operating Controls (Section 7.5 Scanner Operation Controls on page 145) are disabled. But this setting lets some functions remain enabled. These are:
 - Framing Control
 - Focus Control
- **Enable Fast Spooling**
If enabled a double click to a Spool or Unthread button will move the film with higher speed.
Note: During Fast Spool operation the framing and the frame counter correlation will get lost!
- **Vertical Overscan height**
Allows to select an overscan factor in case of an overscan aperture.
- **Store current H and V framing**
H and V framing can be stored as default. Storage will be done for each perforation mode separately. E.g. if a new default is stored for 4perf this will not affect 3perf.
- **Keycode Search Speed 16 mm / 35 mm**
This specifies the filmdeck speed which is used to search for the next keycodes in a keycode list. This defaults to the maximum speed, but to protect the film or avoid keycode read errors it can be decreased.
- **Auto Keycode Adjustment After Ingest**
Details see Section 12.3.3 Auto Keycode Adjustment on page 308.
- **Keycode Reader Mode**
See Section 12.3 Keycode Processing on page 306.

11. Operating concepts

11.1 LUT - Matrix - LUT

The system of Lut/Matrix/Lut is a mechanism used to transform data from one color space into another. This means that film pictures scanned with different scanner units or in different facilities referenced to the same color space should almost be identical.



For this, SMPTE has developed a standard called „Academy Printing Density“. Other examples of color space references are „Status_A“ and „Status_M“. Scanner and film characteristics must be considered while converting raw scanner data into data of certain color spaces.

LUT L1 takes the logarithm of the linear input signal and rectifies the S-curve from exposure time and film density into a linear characteristic. Afterwards, the position inside the color space will be changed by the matrix. In this context the color contrast can be intensified. The Output LUT L2 take the delogarithm. L1 and L2 are inverse to each other. Furthermore they are matched to the film type, the maximal density range, the amount of the linear density range and the reversal point position of the S-curve.

The operator may

- load the delivered LUTs and matrix
- build his own LUTs or matrixes.

In addition there are two more LUT's available ($1-x$ and $y=x$) which are nothing more than examples. Besides the 1:1 LUT and 1:1 matrix selection which will set the stages into a bypass mode there are two LUT's ($1-x$ and $x=y$) available in the system just as an example how a user LUT should look like.

11.1.1 Main LUT

The Main LUT is created automatically by the input parameters Positive/Negative (1/x), density range and characteristics (CPD, CRT, LIN). Settings to Positive, LIN and the density range to 3.5 makes the Main LUT strictly linear. The Main LUT can also be loaded by a user generated file. In case a user LUT is selected, the Positive/Negative setting and the density adjustment will be deactivated.

11.1.2 Creating User-LUTs and Matrix

All LUTs are identical structured and includes 64k values for each color. The lookup-tables must be generated in a pre-defined text format. This can be done either using a standard ASCII text editor or using a standard spreadsheet application like Microsoft Excel or OpenOffice.

The text file contains in each line the R - G - B values separated by a tab.

11.1.2.1 Using a Text Editor

Open a new text document and enter the decimal values for the red, green and blue channel in the following format:

```
[0...65536] [TAB] [0...65536] [TAB] [0...65536] [CR] [LF]
[0...65536] [TAB] [0...65536] [TAB] [0...65536] [CR] [LF]
[0...65536] [TAB] [0...65536] [TAB] [0...65536] [CR] [LF]
..... (65536 times)
```

A table is built of 65536 lines and 3 columns where each entry consists of a decimal number between 0 and 65535 (any 16bit value). The values in the three columns represent the red, green and blue color intensity for a given input value.

11.1.2.2 Using Microsoft Excel

Start the spreadsheet application Excel and open a new empty single sheet. Then fill the three columns A, B and C with numbers from 0 to 65535. Do this from row 1 to row 65536. Therefore, you can use the automatic increment copy features, or a special mathematics formula supported by Excel. Store the file in one of the formats txt or csv, subformats Tab-separated or MsDOS.

Note: Unicode txt does not work!

Example of a one to one matrix table:

The range for Matrix values is -1.9999 ... + 1.999. The following example shows the unity matrix. These matrix values do not manipulate the input signal in any way.

1,0	0,0	0,0
0,0	1,0	0,0
0,0	0,0	1,0

11.1.2.3 Naming Conventions

The different LUT types are:

Type	Naming
Log	<name>.log.txt or .csv
Matrix	<name>.matrix.txt or .csv
Delog	<name>.delog.txt or .csv
Main	<name>.main.txt or .csv

The file can be loaded using an USB flash memory or over the network via ftp into the directory /usr/dft/Scanity/appData/luts.

Creating the files is also possible using a freeware tool like OpenOffice.

11.2 Film Stocks and Film Types

11.2.1 Film Stocks

Film stocks are used to find the right illumination level for a particular film. They contain these parameters located in the Lights Tab:

- Light / Min. Density
- Density Range
- Positive / Negative



Figure 128: Scanner Light Page

When a film stock is loaded, all these values are restored. The Light settings turn to unity (25 for each color).

When one of these values is changed, the film stock is considered as modified. The name of the film stock turns yellow then.

There are some predefined film stocks for common film Types.

11.2.2 Loading and Storing a Film Stock

A film stock is loaded either:

- manually using the Filmstock setting in the Lights-Menu
- or automatically using the Auto FilmStock Detection utility

This switch is also located in the Lights-Menu.

When the predefined Filmstock does not fit or there is an unknown Film Type, you can create your own Filmstock:

- First grade your film using the Lights- and Density controls in the Lights-Menu.
- Then switch to the Setup Page, Tab Film Stock Mems (see below). Pressing the Store button, you are asked for the name of the new Stock.

Having done this, the stock is stored and immediately applied. As mentioned above, the Light settings turn to unity (25 for each color).

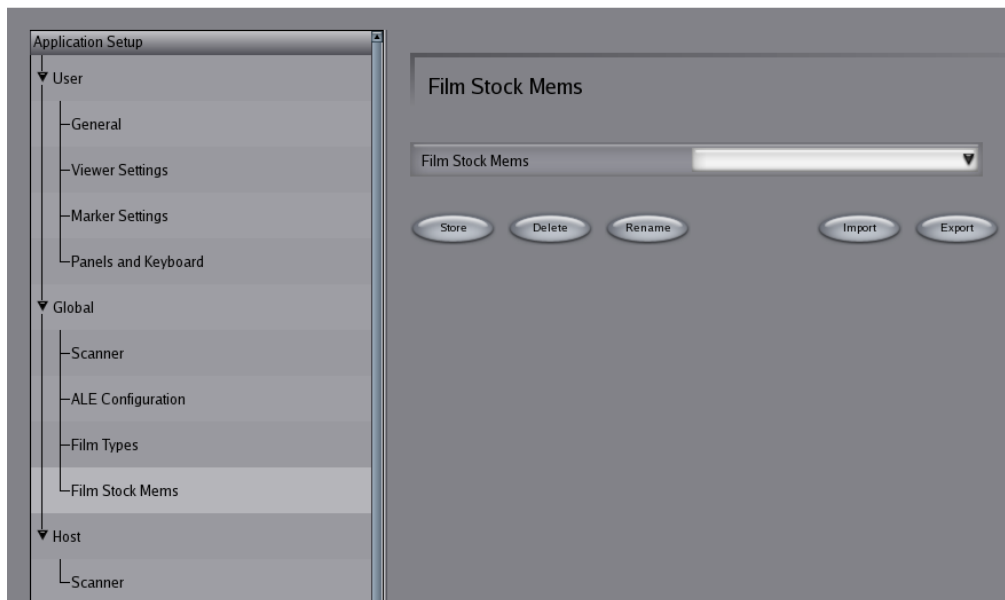


Figure 129: Film Stock Mems

This new FilmStock can now be used for automatic FilmStock detection. To achieve this the new FilmStock must be assigned to the corresponding film-type in the Film Type management dialog described two chapters below.

11.2.3 Film Types

The keycode contains information about the manufacturer of the film and the Film Type.

A SCANITY Film Type is detected by the keycode of the film and is displayed in the Start-Menu.

There is a list of predefined Film Types which can be extended when an unknown keycode is read. In this case a default name is displayed there.

A Film Type can have a Filmstock attached to it, which is loaded automatically when AutoFilmStock Detection is enabled. If no stock is attached, the Film Type is displayed in “yellow color”.



Figure 130: Scanner Start Page

11.2.4 Creating and Attaching a Film Type

If an unknown keycode is detected, you can define a Film Type and attach a Filmstock to it. Switch to the Setup Page, tab Film Types.

If the keycode is unknown, the Store button is enabled. After pressing it, you are asked for the name of the new Film Type. Having done this, the type is stored and appears in the List below.

There you can attach a Filmstock by clicking in the FilmStockMem field. A control appears which allows to select one of the available film stocks. A selected film stock is attached to the film type then.

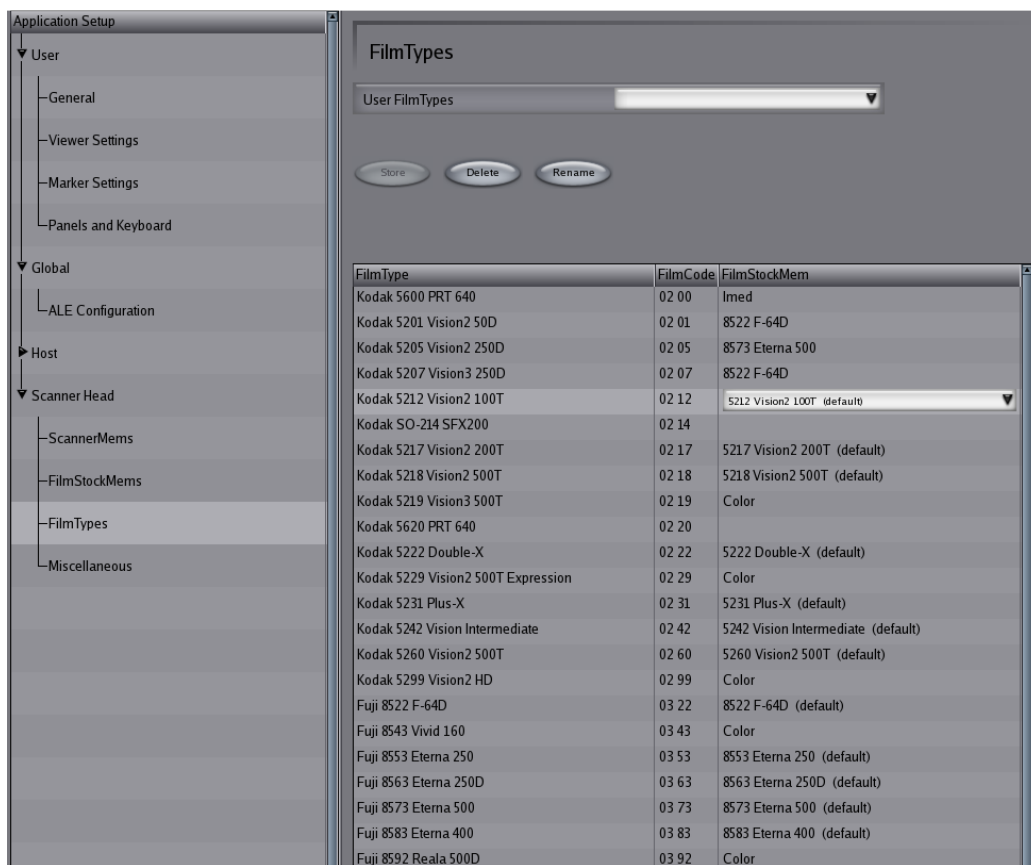


Figure 131: Film Types

11.2.5 Auto FilmStock Detection

This utility is enabled with a switch in the Lights-Menu. When enabled, it scans the incoming keycode for a Film Type known to SCANITY. If a Film Type is detected which has a Filmstock attached to it, the Filmstock is applied automatically. A message in the Log appears then.

11.3 Keycode Processing

Keycode is

- Read from the film. The Reading Quality is displayed in the Start - Menu (see Section 6.5.1.7 Keycode Reading Quality)
- Ingested together with the image
- Displayed in the Time Display Monitor (see Section 6.3.2.2 Time Display) and optionally in the Info Window (see Section 6.1.2.1 Setting Button)
- Inserted in the dpx-Header

11.3.1 Controlling the Keycode Processing

This is performed with the Setup Keycode Reader Mode (see Section 10.3.1 Scanner)
Available settings are:

- **Off**
The keycode is not read or processed.
- **Read Only**
Keycode is read and inserted into the dpx header, but not processed. Use this mode if the keycode jumps heavily and would disturb the processing.
- **Full Operation**
The keycode is read, inserted in the dpx header, and processed.

11.3.2 Keycode Decoding

The keycode manufacturer and Film Type information being displayed in the viewers during ingest and playout is being decoded based on information that is stored within the file `/usr/dft/etc/config/KeycodefilmCodes1.1.txt`.

So whenever the image viewer displays the manufacturer and film type within the keycode numerical like 02 00 instead of alphabetical like K P one can define this new film type within the file described above.

The file is arranged in sections for each manufacturer starting with a line like:

```
FILM_ID_CODES      "02 12 22 "K"      # Kodak
```

For Kodak where 02 12 and 22 are the manufacturer ids for Kodak with result in the letter K.

This is followed by the different Film Types of each manufacturer like:

```
00 P      # 5600
14 X      # SO-214 SFX 200T
20 Y      # 5620 Prime Time
22 E      # 5222/7222
24 L      # 5224
31 H      # 5231/7231
34 D      # 5234/7234
43 A      # 5243/7243
```

Where 00 followed by P indicates that the Kodak Film Type 00 is being displayed with the letter P.

The editing of the file should be done by the system administrator and the SCANITY application must be restarted to get the changes within the file activated.

11.3.3 Reel Jump Detection

In SCANITY a keycode reel jump detection is installed which inserts a Reel Marker each time a keycode jump is detected.

After a keycode jump certain errors and anomalies can occur like

- small keycode jumps (less than 1 feet)
- invalid keycode offset
- invalid perforation sequence jumps at 3 perf

These checks happen

- automatically during an image ingest.
- manually on user request (image page, right mouse click on a selected image clip, Detect Keycode Reel), see Section 6.6.1 Browser Context Menu.

These incidents are marked with an Anomaly Marker.

11.3.4 Auto Keycode Adjustment

Keycode anomalies can be automatically repaired. After Ingest, a utility tries to fix within the first 250 frames after a keycode film reel change this keycode anomalies:

- Perf sequence jumps
 - Invalid keycodes or invalid offsets
 - Keycode jumps of less than 4 frames
 - Duplicate keycodes (max 3 duplicates in a row)
- All automatically fixed keycode anomalies are marked with an anomaly marker with category set to KCAutoFix and note set to it's original keycode value.

Enable this feature in Setup Page, see Section 10.3.1 Scanner.

11.3.5 Keycode Renumbering

If there is an already recorded clip with wrong keycode values (no keycode at all, missing format string, jumps and errors) it is possible to correct/set those keycode values manually.

This feature is available only when a Clip from the local storage is displayed in the viewer.

- First set the last frame with a valid keycode as In Point.
- Then the last frame with an invalid keycode should be selected as Out Point.
- Select keycode renumber from the context menu of the TimeBar (see 6.2.4 Time bar Context Menu). This opens the keycode renumber dialog:
Keycode Renumber (available only when a Clip from the local storage is viewed)
If there is a clip with wrong keycode values (no keycode at all, missing format string, jumps and errors) it is possible to correct/set those keycode values manually.
- First set the last frame with a valid keycode as In Point.
- Then the last frame with an invalid keycode should be selected as Out Point.
- Select Keycode Renumber from the context menu. This opens the renumber dialog.



Figure 132: Keycode Renumber Dialog

Press OK to start the renumber process.

If the In Point and the preceding frames have no keycode, it is necessary to set the new keycode, film format and perf hole. It is not possible to UNDO renumbered keycode values.

11.4 Scanning Speeds

The selection of the scanning resolution influences the scanning speed. As a rule:
Lower resolution, higher speed.

Resolution	Speed A	Speed B	Speed C	Speed D
35mm - 4perf				
4K	15	12	9	6
2K	25	20	15	10
1K	44	36	28	18
0.5K	80	55	44	28
0.25K	96	80	66	44
35mm - 3perf				
4K	20	16	12	8
2K	33	27	20	13
1K	59	48	37	24
0.5K	88	73	59	37
0.25K	128	107	88	59
35mm - 2perf				
4K	30	24	18	12
2K	50	40	30	20
1K	88	72	56	36
0.5K	132	110	88	56
0.25K	132	132	110	72
35mm - 8perf				
4K	8	6	5	3
2K	13	10	8	5
1K	22	18	14	9
0.5K	33	27	22	14
0.25K	48	40	33	22
16mm				
4K	18	15	10	10
2K	30	25	18	15
1K	50	37	30	18
0.5K	90	70	50	30
0.25K	137	90	70	50

Note: Record speeds may be less and depends of the file system, workstation and SAN performance! In Play, frames may be dropped from a certain speed onwards in the GUI monitoring only 4k only speeds do not apply to SCANITY 2K versions.

Note: Bandwidth in RGBA16 mode might exceed the maximal system bandwidth. Please reduce the scan speed a little in this case.

11.5 Screen Color Metrics

This is an additional LUT on the viewer only. It converts header defined image characteristics into target display characteristics.

- **Raw Source**
No display LUT
- **Normal**
TV gamma (CRT, gamma = 0,45)
- **CPD**
Logarithmic
- **DTV**
CRT, different initial gradient to Normal

12. Appendix

12.1 Keycode Pull List File Description

This standard defines a file format of a Keycode List. The file extension is .kcl.

A keycode List is a standard ASCII file. It contains some special keywords, values, comments and delimiters. It is divided into several lines. All keywords and values are case sensitive.

12.1.1 Keycode File Format

- **Line Delimiters**

A line delimiter is either a <CRLF> or a <CR>. This means that DOS line endings and UNIX line endings are accepted. Empty lines are allowed and will be ignored.

- **Word Delimiters**

Delimiters can be at the beginning of a line, between keywords, values, and comments. A delimiter is either a SPACE or a TAB character.

A delimiter between a keyword and its value is the equal character (=).

- **Comments**

Each line can have a comment until the end of the line. A comment starts either with a semicolon (;) or with a double hash (#). A comment will be ignored.

- **Keywords**

Some keywords must have a value. Keywords can be embedded in quotation marks ("). The equal delimiter (=) divides a keyword and its value if the keyword has a value. Additional SPACE and or TAB delimiters are allowed. All keywords with values are optional. If not given, a default value is used.

- **Values**

All optional values must follow an equal character (=). All optional values belong to a keyword. The start keycode value and the number of frames to be scanned value do not follow a keyword. These values are required. A value can be either an integer value or a string value. A value can be embedded into quotation marks (").

The start keycode value must be embedded into quotation marks.

- **Keycode File Lines**

The keycode List starts with the Start Line followed by a list of Keycode Lines and ends with the End Line.

- **Keycode List Start Line**

The first (non-empty) line in a keycode list must begin with the keyword START. Optional keywords with their values can follow this keyword but must be in the same line. All supported keywords are version, perf, path. The order of the optional keywords is arbitrary. The keyword version defines the keycode list version number. Currently, the versions 0 and 1 are supported. With version 1, an additional event number is introduced at the beginning of each keycode line (see below). The keyword perf defines the film keycode perforation. Only the perforations 1 (16mm only), 3 and 4 are supported. The value of path defines the target directory for all following keycode lines unless it is set there. Only the last directory level is used for the target directory.

- **Keycode Line**

A keycode line must start either with the keycode start value or with an event number. If the current version is 0, the line must start with the code start value. If the current version is 1, it must start with the event number. In this case, the keycode start value must follow the event number. After the keycode start value, the length or the keycode end value must be specified. This means that a keycode line must have at least two values (with version 0) or three values (with version 1), the event number (version 1 only), the keycode start value and the keycode length (or keycode end value). Optional keywords with their values can follow but must be in the same line. The order of the optional keywords is arbitrary. All supported keywords are: path, prefix, suffix, padding, startFTC, stopAfterXfer, stopAfterCue.

- **Prefix, Suffix, and Padding**

The keywords prefix, suffix, and padding define how the stored file names look. For instance, the frame number 1000 is stored in a file named Bob_001000.dpx if prefix is set to Bob_, padding is set to 6 and suffix is set to .dpx. If numbers are used in the prefix, it is required to use a not numeric character following (e.g. underscore or dash) the numbers. Otherwise the prefix will be used as a part of the frame number!

- **Path**

This value defines the target directory. Only the last directory level is used for the target directory. The keyword startFTC defines the frame number to which the first scanned frame will be assigned. The keywords stopAfterCue and stopAfterXfer define whether a stop flag shall be set or not. If no value is given (default), no stop flags are set. A value of 1 indicates that a stop flag shall be set.

- **Start/End Keycode Value**

The start and end keycode value must be embedded into quotation marks. It is a string with a length of 18 characters. It has white space in it, hence the quotation marks requirement.

- **Keycode Length**

The number of frames to be scanned can be a simple integer value as an absolute frame number or a string value containing a plus character describing the feet to be scanned plus the additional frames. For instance, 50+05 means that 50 feet plus 5 frames will be scanned.

- **Stop Flags**

Same types of stop flags can be used. Stop flags must be set manually after importing.

It is also possible to ignore parts of a keycode pull list.
For that, the manufacturer ID code, the film ID code and the film roll prefix values can be set to question marks.

That means for example, that the following parts of the keycode are ignored, if

- manufacturer id code KK is set to “??”
- film id code MM is set to “??”
- film roll prefix PPPPP is set to “??????”

Note: If numbers are used in the prefix, it is required to use a not numeric character following (e.g. underscore or dash) the numbers. Otherwise the prefix will be used as a part of the frame number!

13. Glossary

- **16mm**
The standard film gauge for films intended for television, though it is often used by low-budget and amateur filmmakers because of lower film and processing costs. The smaller negative area means that the film's picture resolution is lower, though this can be exploited to artistic effect (for instance, by intentionally shooting a grainy picture).
- **35mm**
The standard film gauge for films intended to be shown in cinemas. Depending on the film stock being used, 35mm film can produce an image of sufficient detail to fill even a large cinema screen.
- **A or B Wind**
When a roll of 16mm film, perforated along one edge, is held so that the outside end of the film leaves the roll at the top and toward the right, winding "A" should have the perforations on the edge of the film toward the observer, and winding "B" should have the perforations on the edge away from the observer. In both cases, the emulsion surface should face inward on the roll.
- **Academy Aperture**
In 35mm this is the full frame exposed by the camera, with an aspect ratio of 1.33. When the film is projected there is a mask in the projector's gate to change the aspect ratio to 1.85 or 1.66, cropping the top and bottom of the image. Older films were not shot to be masked and should be projected without a mask. The Academy Aperture is sometimes called the Full Academy Aperture.
- **Anamorphic**
An optical system having different magnifications in the horizontal and vertical dimensions of the image.
- **Aperture**
Effective Aperture: The apparent diameter of a lens viewed from the position of the object against a diffusely illuminated background, such as a sky. Picture Aperture: The rectangular opening in a metal plate at which each frame of the motion picture film is situated during exposure, printing, or projection. Relative Aperture: The ratio of the focal length of a lens to its effective aperture for an object located at infinity.
- **Aspect Ratio**
A measure of the relative sizes of the horizontal and vertical components of an image. "Academy Ratio" is 1.33:1. See also anamorphic.
- **Black and White**
Indicates that the images have no color. The first movies were black and white (as color film stock hadn't been invented), but in more recent times many films have been shot in black and white either for artistic reasons or because it is cheaper. Some films are shot using color film stock with the final print in black and white.
- **Blanking**
Portions of the video signal during which both camera and receiver complete a scan line (horizontal blanking) or field (vertical blanking) and retrace to begin the next scan.
- **Cache**
A temporary storage area for information which locates itself between the hard disk and the RAM by employing intuitive logic. It also speeds up access time of the data.

- **Cinemascope**
Trade name of a system of anamorphic widescreen presentation.
- **Colorist**
An image artist who, during post-production of a movie or television show, utilizes computer-based alteration/correction programs to go through the movie/show frame by frame to insure color and light continuity.
- **Core**
Plastic piece used to hold film without a reel.
- **Dailies**
The first positive prints made from the negatives photographed on the previous day. During filming, the director and some actors may view these dailies as an indication of how the filming and the actors' performances are progressing.
- **Density**
The negative logarithm to the base ten of the transmittance (or reflectance) of the sample. A sample which transmits 1/2 of the incident light has a transmittance of 0.50. or 50% and a density of 0.30.
- **D-max**
Maximum density. The greatest density in an image. Also, the greatest density possible for a film or paper.
- **D-min**
Minimum density. The smallest density in a image. Also, the smallest density possible for a film or paper.
- **DPX**
Digital Picture Exchange (DPX) is a common file format for digital intermediate and visual effects work and is an ANSI/SMPTE standard (268M-2003). The file format is most commonly used to represent the density of each color channel of a scanned negative in a 10-bit log format where the gamma of the original camera negative is preserved as taken by a film scanner. Other common video formats are also supported. DPX provides a great deal of flexibility in storing color and other information for exchange between production facilities. Multiple forms of packing and alignment are possible.
- **Drop Frame**
A type of SMPTE timecode designed to match clock time exactly. Two frames of code are dropped every minute, on the minute, except every tenth minute, to correct for the fact that color frames occur at a rate of 29.97 per second, rather than an exact 30 frames per second (see Non-Drop Frame). Designed to drive editors crazy.
- **Edge Numbers**
Numbers printed along one edge of a motion picture film outside the perforations to designate the footage.
- **EDL (Edit Decision List)**
List of edits prepared during off-line editing prior to on-line editing.
- **Emulsion Side**
The side of the film coated with emulsion.

- **Emulsion Type**

A film's emulsion type refers to the composition of its emulsion, whether it was manufactured to be fast, slow, grainy, fine-grained, colorful, pastel, black and white or color, daylight balanced, tungsten balanced, etc. The emulsion type is represented by a number. For Kodak it is a series of four numbers, such as 7248. The "72" always stands for 16mm camera stock, and the same emulsion type is found in 35mm as 5248, "52" being the designation of 35mm. Fuji uses a system where the film's emulsion type is a little more telling, such as 250D, which is daylight balanced film with an Exposure Index of 250. When picking out a stock to use the film speed, and in the case of color film, whether the film is daylight or tungsten, are the primary reasons for choosing a certain emulsion type. Allowances might also be made to achieve a certain look, as in using Kodak Vision, or Fuji film. Several different emulsion types are usually used on a project, fast for night scenes, slow for daylight scenes, etc.

- **Field**

One-half of a television frame, containing all the odd or even scanning lines of the picture.

- **Film Grain**

The tiny particles of light-sensitive material on film stock that record images. Finer grains give higher image quality, but coarser grains allow a faster shutter speed. Graininess is an artifact which results from the use of coarse grains and gives images a slight mosaic appearance.

- **Film Stock**

The physical medium on which photographic images are recorded.

- **Focus**

The sharpness of an image, or the adjustments made on a camera necessary to achieve this.

- **Format**

The size or aspect ratio of a motion picture frame.

- **Frame (Video)**

A complete television picture made up of two fields, produced at the rate of approximately 29.97 Hz (color), or 30 Hz (black & white).

- **Frame Rate (Frames per Second)**

Movies are created by taking a rapid sequence of pictures (frames) of action. By displaying these frames at the same rate at which they were recorded, the illusion of motion can be created. "Frame Rate" is the number of frames captured or projected per second. The human optical system is only capable of capturing about 20 images per second; hence to give a realistic illusion of motion a frame rate greater than this is required. Most modern motion pictures are filmed and displayed at 24 fps. Earlier films used lower frame rates, and hence when played back on modern equipment, fast motion occurs due to undercranking.

- **Fullscreen**
Full screen is a term used to describe the shape of the picture a movie is displayed for it to fill a regular (as of 1998) TV screen. At the time of writing, most TVs are squarer than the newer wide screen TVs on the market. With these older sets, for every 4 inches/cm of horizontal screen size there are 3 inches/cm of vertical size, hence a 4:3 aspect ratio. Wide screen TVs have 5 and 1/3 inches/cm horizontal size for each 3 of vertical. Rather than write that as 5.333:3, we use 16:9. So Fullscreen = 4:3, Widescreen = 16:9. When a movie is played in full screen format for a 4:3 TV, the movie is almost always adjusted to fit. You may be familiar with the phrase "this movie has been modified from its original version. It has been formatted to fit your TV." What that almost always means is that much of the original picture has been thrown away, i.e. the pan and scan procedure has been used to pick the most appropriate pieces of the picture to keep because the old TV screen is the wrong shape to show the whole picture. In terms of home cinema, full screen is inferior to wide screen and is often considered to be an unacceptable format. The 4:3 shape TV is expected to become obsolete over the next decade as TV moves to digital and HDTV formats, which are wide screen based. DVDs often offer both full screen and wide screen formats, however many are already only available in wide screen and anamorphic format, to cater for the growing audience of home cinema enthusiasts who have already abandoned full screen.
- **Gate**
The aperture assembly at which the film is exposed in a camera, printer or projector.
- **Genlock**
A system whereby the internal sync generator in a device, such as a camera, locks on to and synchronizes itself with an incoming signal.
- **Header**
Technical information packaged with an image file, which may be of use in displaying the image (e.g., length and width in pixels), identifying the image (e.g., name or source), or identifying the owner.
- **Histogram**
A graphic representation of how brightness and darkness pixels are distributed in an image. A histogram skewed heavily to the left indicates a dark image, while a histogram skewed to the right indicates a light image.
- **Intermediates**
General term for color masters and dupes.
- **Internegative**
An intermediate copy of a film, made on a very fine-grained stock, and used to make a greater number of prints than it is practical to make from the A&B Rolls.
- **Interpositive**
An intermediate copy of a film, made on a very fine-grained stock, usually required as an intermediate step to making an internegative.
- **Key Number**
Numbers printed along one edge of a motion picture film outside the perforations to designate the footage.
- **Keycode Reader**
Device attached to a telecine or part of a bench logger which reads keycode numbers bar code from motion picture film and provides electronic output to a decoder.

- **Letterbox**

As the aspect ratio of movies are rarely the same as the aspect ratio of a television screen, when showing movies on TV it is necessary to make sacrifices.

“Letterboxing” is a video mastering process whereby a film source with an aspect ratio greater than that of the video master (4:3 for NTSC/PAL and 16:9 for HDTV) is transferred to the video master in such a way that no film image is cut off to the left or the right, requiring the addition of (usually) black bars at the top and at the bottom of the image so that it entirely fills the screen--in other words, the technique of shrinking the image just enough so that its entire width appears on screen, with black areas above and below the image. The advantage of this technique is that the film images are shown as originally intended by the film’s creators, not interfering with their shot composition and artistic intentions. The disadvantage is that the entire image must be shrunk, which makes viewing on smaller TVs more difficult. Contrast with pan and scan (for DVD, also anamorphic wide screen).

- **Lut**

Look-up table. The table of colors a computer can display at a given time. The computer uses the table to approximate the desired color from the range it has available.

- **Metadata**

Data about data, or information known about the image in order to provide access to the image. Usually includes information about the intellectual content of the image, digital representation data, and security or rights management information.

- **Motion Artifact**

The visual interference patterns between a shot’s frame rate and a filmed object’s periodic motion or change. If a shot is filmed with a frame rate R , any images of periodic events of a frequency greater than $R/2$ (the “Nyquist Limit”) will be misrepresented on film. A commonly-occurring example of this artifact is the illusion of spoked wheels appearing to turn in the wrong direction or at the wrong rate. Incorrect frame rates and synchronization can also cause strobing during shots of projected movies or of television screens. See also artifact, judder.

- **Motion Blur**

Shots of objects that quickly move in the camera’s frame, and/or shots with a slow shutter speed are likely to produce a “smearing” effect, since the object is in a range of positions during a single exposure.

- **Negative Print**

A reverse light image capture. See also positive print.

- **Nitrate Film**

Cellulose nitrate film is extremely dangerous. It catches fire very easily and once alight is difficult to put out. Fires involving cellulose nitrate burn extremely quickly with a hot, intense flame and the smoke is particularly toxic, containing large quantities of poisonous gases. Any cellulose nitrate film that you come across now will be extremely old. This is a problem because the high fire risk from cellulose nitrate film increases as it ages.

Old cinematographic film and old photographic negatives (including X-ray film) may be made from cellulose nitrate (which means they contain nitrated cellulose, or other nitrated product).

These films are sometimes referred to as ‘nitrate’, ‘nitrate-based’, ‘nitro-cellulose based’ or ‘celluloid’ film (although the term ‘celluloid’ is often used these days to refer to film in general, it may not actually contain cellulose nitrate).

- **Non-Drop Frame**
A type of SMPTE timecode that continuously counts a full 30 frames per second. As a result, non-drop-frame timecode does not exactly match real time. (See also Drop Frame.)
- **Perforations (Perf)**
Regularly spaced and accurately shaped holes which are punched throughout the length of a motion picture film. These holes engage the teeth of various sprockets and pins by which the film is advanced and positioned as it travels through cameras, processing machines, and projectors.
- **Post-Production**
Work performed on a movie after the end of principal photography. Usually involves editing and visual effects.
- **Proxy Image**
A low-resolution image used in any software programs to show the effects of changes without performing transformations on high resolution files.
- **Reel**
A strip of film wound on a metal wheel. Typical reels hold 15-25 minutes of film.
- **RGB**
Red, green & blue, the primary color components of the additive color system used in color television.
- **Safety Film**
Cellulose acetate film, or safety film, is used in photography as a base material for photographic emulsions. It was introduced in the early 20th Century by film manufacturers as a safe film base replacement for unstable and highly flammable nitrate film.
- **Scratch**
Damage to a film in the form of a long gouge of either the emulsion or the base.
- **Sprocket**
A toothed driving wheel used to move film through various machines by engaging with the perforation holes.
- **Super 16**
A format using single perf 16mm film on which a wider image is exposed than is the case with regular 16mm, using the area that would normally have the sound track. Super 16mm was conceived specifically for blow up to 35mm and is typically rather inconvenient for anything else.
- **Timecode**
A frame numbering system adopted by SMPTE that assigns a number to each frame of video which indicates hours, minutes, seconds and frames (e.g., 01:42:13:26).
- **Thumbnail**
A small, low resolution version of a larger image file that is used for quick identification or speedy editing choices.
- **Vertical Interval**
Indicates the vertical blanking period between each video field. Contains additional scan lines above the active picture area into which non-picture information (captioning, test and control signals, user bits) can be recorded.

- **Vertical Sync**
Synchronizing pulses used to define the end of one television field and the start of the next, occurring at a rate of approximately 59.94 Hz (color), and 60 Hz (black & white).
- **VITC (Vertical Interval Timecode)**
Timecode recorded in the vertical blanking interval above the active picture area. Can be read from video tape in the “still mode.”
- **Widescreen**
A movie which has an aspect ratio which is greater than academy ratio when projected.

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